



# PUBLIC NOTICE

**File Number: NRS 13.248**

---

Pursuant to Chapter 0400-4-7 of the Department's rules, the proposed activity described below has been submitted for approval under an Aquatic Resource Alteration Permit and §401 Water Quality Certification. This notice is intended to inform interested parties of this permit application and to ask for comments and information necessary to determine possible impacts to water quality. No decision has been made whether to issue or deny this application.

**APPLICANT:** Dwain Hibdon  
SSOE Group  
320 Seven Springs Way, Ste. 350  
Brentwood, TN 37027  
615-372-7885

**LOCATION:** Memphis Regional Mega Site Sanitary Force Main, from Stanton to Brownsville, Big Muddy Creek and Hatchie River, Haywood County, TN (Lat: 35.43105749/Lon: -89.40532207)

**PROJECT DESCRIPTION:** The applicant proposes to construct a water treatment lagoon and fifteen miles of sanitary force main from Stanton to Brownsville and a water distribution system requiring relocation of 900 feet of intermittent stream into 2000 feet of channel and 25 crossings of streams and wetlands. Construction of the force main would be timed to be completed during the driest months of the late summer and fall to avoid impacts to waters of the state in the smaller tributaries where open cut trench method is proposed. No blasting is proposed. Trenches would be required to include clay trench plugs along the length and concrete caps within channels to prevent loss (French drain effect) of either surface or ground water along the length of the pipe. All disturbed areas would be stabilized immediately upon completion and seeded. Temporary cover (mulch, straw, erosion blankets) would be placed over exposed areas until permanent vegetative cover is established. Top soil from impacted wetlands would be preserved and stockpiled. All disturbed wetlands would be restored to original elevation and reseeded by incorporation of stockpiled wetland top soils and additional seeding as needed.

Impact 1: Latitude: 35.43105749                      Longitude: -89.40532207  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400)

Existing ~920' of straight intermittent stream would be altered in the following manner:

- 150' of the original channel will remain as a branch of the new channel
- A relocated channel would be constructed ~2000' in length with a 5' wide base, sloped at a 4:1 ratio to a total bank height varying from 3' to 12' along the course of the channel with a top of bank width also varying from 12' to 48' dependent upon bank height. The

slopes would be stabilized with erosion control blankets and seeded with locally sourced grass mix for permanent vegetative stabilization.

- Install 173' of 6X3 box culvert from Station 14.61+/- to Sta. 16.22+/- with wing walls to facilitate an entry access road and the perpendicular crossing of the 18" force main, 24" sanitary sewer and the local site 8" water line.

The relocation would provide mitigation for the impacts to the original channel including the culvert.

Impact 2: Latitude: 35.4182                      Longitude: -89.4006  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400)

Proposed 18" force main utility line crossing by open cut methodology.

Impact 3: Latitude: 35.4182                      Longitude: -89.4006  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400)

Proposed 4" force main utility line crossing by open cut methodology.

Impact 4: Latitude: 35.4338                      Longitude: -89.4006  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400)

Proposed 18" force main utility line crossing by open cut methodology.

Impact 5: Latitude: 35.4344                      Longitude: -89.4006  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400)

Proposed 18" force main utility line crossing by open cut methodology.

Impact 6: Latitude: 35.4512                      Longitude: -89.4005  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400)

Proposed 18" force main utility line crossing by jack and bore methodology.

Impact 7: Latitude: 35.4668                      Longitude: -89.3850  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400)

Proposed 18" force main utility line crossing by open cut methodology.

Impact 8: Latitude: 35.4677                      Longitude: -89.3838  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 9: Latitude: 35.4681                      Longitude: -89.3834  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 10: Latitude: 35.4835      Longitude: -89.3680  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 11: Latitude: 35.4837      Longitude: -89.3679  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 12: Latitude: 35.4843      Longitude: -89.3674  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 13: Latitude: 35.4846      Longitude: -89.3670  
Unnamed tributary to Big Muddy Creek (TN08010208007\_0400) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 14: Latitude: 35.5001      Longitude: -89.3516  
Unnamed tributary to Hatchie River (TN08010208001\_3000) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 15: Latitude: 35.5008      Longitude: -89.3510  
Unnamed tributary to Hatchie River (TN08010208001\_3000) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 16: Latitude: 35.5010      Longitude: -89.3508  
Unnamed tributary to Hatchie River (TN08010208001\_3000) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 17: Latitude: 35.5016      Longitude: -89.3503  
Unnamed tributary to Hatchie River (TN08010208001\_3000) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 18: Latitude: 35.5169      Longitude: -89.3501  
Unnamed tributary to Hatchie River (TN08010208001\_3000) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 19: Latitude: 35.5173      Longitude: -89.3349  
Hatchie River (TN08010208001\_3000) and wetlands

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 20: Latitude: 35.5338      Longitude: -89.3338  
Unnamed tributary to Hatchie River (TN08010208001\_3000)

Proposed 18" force main utility line crossing by horizontal directional drilling methodology.

Impact 21: Latitude: 35.5677      Longitude: -89.2839  
Unnamed tributary to Sugar Creek (TN08010208031\_1000)

Proposed 18" force main utility line crossing by open cut methodology.

Impact 22: Latitude: 35.5677      Longitude: -89.2672  
Unnamed tributary to Sugar Creek (TN08010208031\_1000)

Proposed 18" force main utility line crossing by jack and bore methodology.

Impact 23: Latitude: 35.4336      Longitude: -89.4334  
Unnamed tributary to Little Muddy Creek (TN08010208946\_1000)

Proposed 18" force main utility line crossing by open cut methodology.

Impact 24: Latitude: 35.43395      Longitude: -89.41750  
Unnamed tributary to Little Muddy Creek (TN08010208946\_1000)

Proposed 18" force main utility line crossing at two locations along this segment of stream by open cut methodology.

Impact 25: Latitude: 35.4173      Longitude: -89.4334  
Unnamed tributary to Little Muddy Creek (TN08010208946\_1000)

Proposed 18" force main utility line crossing by open cut methodology.

Impact 26: Latitude: 35.4340      Longitude: -89.4011  
Unnamed tributary to Little Muddy Creek (TN08010208946\_1000)

Proposed 18" force main utility line crossing by open cut methodology.

***DEGRADATION:*** In accordance with the Tennessee Antidegradation Statement (Rule 0400-40-03-.06), the division has determined that the proposed activity will result in only de minimus degradation to water quality.

**WATERSHED / WATERBODY DESCRIPTION:** Big Muddy Creek (TN08010208007\_0400) flows into the Lower Hatchie River (TN08010208001\_3000) Watershed. The Tennessee portion of the Lower Hatchie River Watershed is located in West Tennessee and includes parts of Chester, Fayette, Hardeman, Haywood, Lauderdale, Madison and Tipton counties. It is approximately 1,461 square miles (1448 square miles in Tennessee) and drains to the Mississippi River. For more information on this watershed please visit <http://www.state.tn.us/environment/water/watersheds/lower-tennessee-river.shtml>

The Unnamed tributary to Big Muddy Creek (TN08010208007\_0400) is in the Loess Plains (74b) ecoregion. The channel dimensions are as follows: channel bottom width 8-10', channel top width 10-12', water depth 0-1", and bank height 5-8'. Typical substrate in this section is comprised of silt, clay and mud.

Unnamed tributary to Big Muddy Creek (TN08010208007\_0400) was assessed in 2014. It is not supporting for fish and aquatic life due to physical alterations and disturbance of littoral vegetation. The stream impacts are required to be mitigated in the same waterbody as is currently proposed by the applicant.

Impacts to the Lower Hatchie River (TN08010208001\_3000) and its tributaries would be either avoided by horizontal drill or of a temporary nature. The waterbody described above reflects a direct impact to waters of the state. The Hatchie is designated as a "scenic river" under the Tennessee Wild and Scenic Rivers Act. More detailed information on this river may be found here: [http://www.tn.gov/environment/water/docs/watersheds/lowerhatchie\\_summary.pdf](http://www.tn.gov/environment/water/docs/watersheds/lowerhatchie_summary.pdf).

**Stream Name / ID #:** Big Muddy Creek (TN08010208007\_0400)

**Ecoregion:** Loess Plains (74b) ecoregion

**Stream Dimension:** Channel bottom width 8-10'  
 Chanel top width 10-12'  
 Water depth 0-1"  
 Bank height 5-8'

**Substrate:** silt, clay, and mud

<b>Designated Use</b>	<b>Use Support</b>	<b>Causes</b>
Fish and aquatic life	not supporting	physical alterations and disturbance of littoral vegetation
Recreation	fully supporting	
Industrial water supply	fully supporting	
Irrigation	fully supporting	
Livestock watering & wildlife	fully supporting	

Unnamed tributary to Big Muddy Creek (TN08010208007\_0400) was assessed in 2014. It is not supporting for fish and aquatic life due to physical alterations and disturbance of littoral vegetation. The stream impacts are required to be mitigated in the same waterbody as is currently proposed by the applicant.

**Assessment Date:** 2014

**PERMIT COORDINATOR:** Brian Canada

**FACTORS CONSIDERED:** In deciding whether to issue or deny a permit, the department will consider all comments of record and the requirements of applicable federal and state laws. In making this decision, a determination will be made regarding the lost value of the resource compared to the value of any proposed mitigation. The department shall consider practicable alternatives to the alteration. The department shall also consider loss of waters or habitat, diminishment in biological diversity, cumulative or secondary impacts to the water resource, and adverse impact to unique, high quality, or impaired waters.

**COMMENTING:** Persons wishing to comment on the proposal are invited to submit written comments to the department. Written comments must be received within **thirty days of the date that this notice is posted**. Comments will become part of the record and will be considered in the final decision. The applicant's name and permit number should be referenced. Send all written comments to the department's address listed below and to the attention of the permit coordinator.

**PUBLIC HEARING:** Interested persons may request in writing that the department hold a public hearing on this application. The request must be filed within the comment period, indicate the interest of the person requesting it, the reasons that the hearing is warranted, and the water quality issues being raised. When there is sufficient public interest in water quality issues, the department will hold a public hearing. Send all public hearing request to the department's address listed below and to the attention of the permit coordinator.

**APPEAL:** A permit appeal may be filed, pursuant to T.C.A. §§ 69-3-105(i) and Rule 0400-40-05, by the permit applicant or by any aggrieved person who participated in the public comment period announced by this notice. This petition must be filed within THIRTY (30) DAYS after public notice of the issuance of the permit. The petition must specify what provisions are being appealed and the basis for the appeal. It should be addressed to the technical secretary of the Tennessee Board of Water Quality, Oil and Gas at the following address: Tisha Benton, Director, Division of Water Resources, William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Ave, 11<sup>th</sup> floor, Nashville, TN 37243. Any hearing would be in accordance with T.C.A. §§69-3-110 and 4-5-301 et seq.

**FILE REVIEW:** The permit application, supporting documentation including detailed plans and maps, and related comments are available at the department's address (listed below) for review and/or copying.

Tennessee Department of Environment & Conservation  
Division of Water Resources, Natural Resources Unit  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 11th Floor  
Nashville, Tennessee 37243

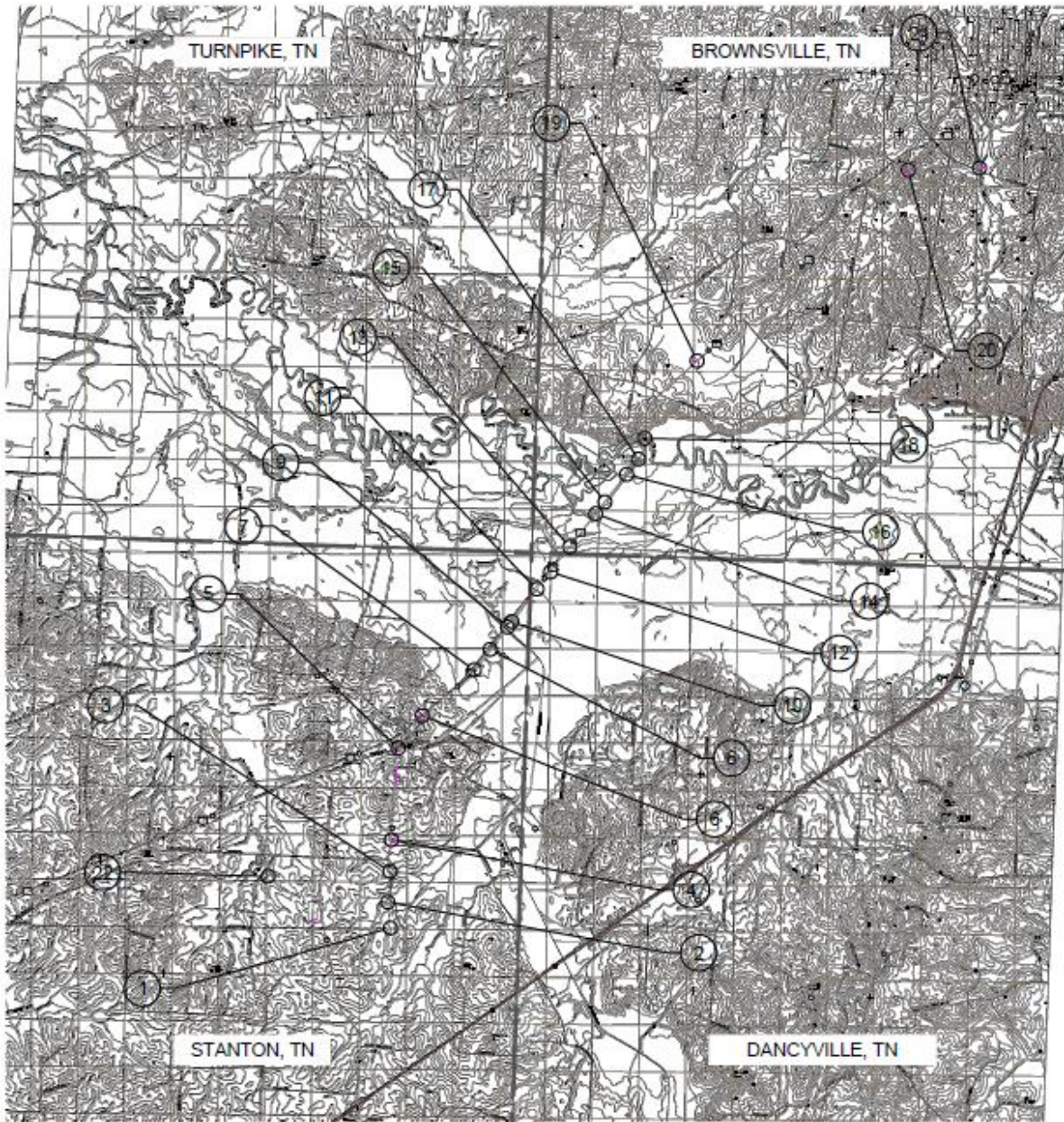




PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
COPYRIGHT: SSOE, Inc. 2011

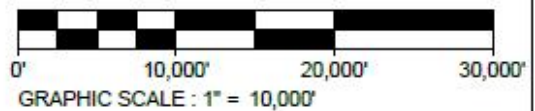
DRAWING TITLE:  
**OVERALL SITE PLAN  
AQUATIC RESOURCE  
ALTERATION PERMIT**

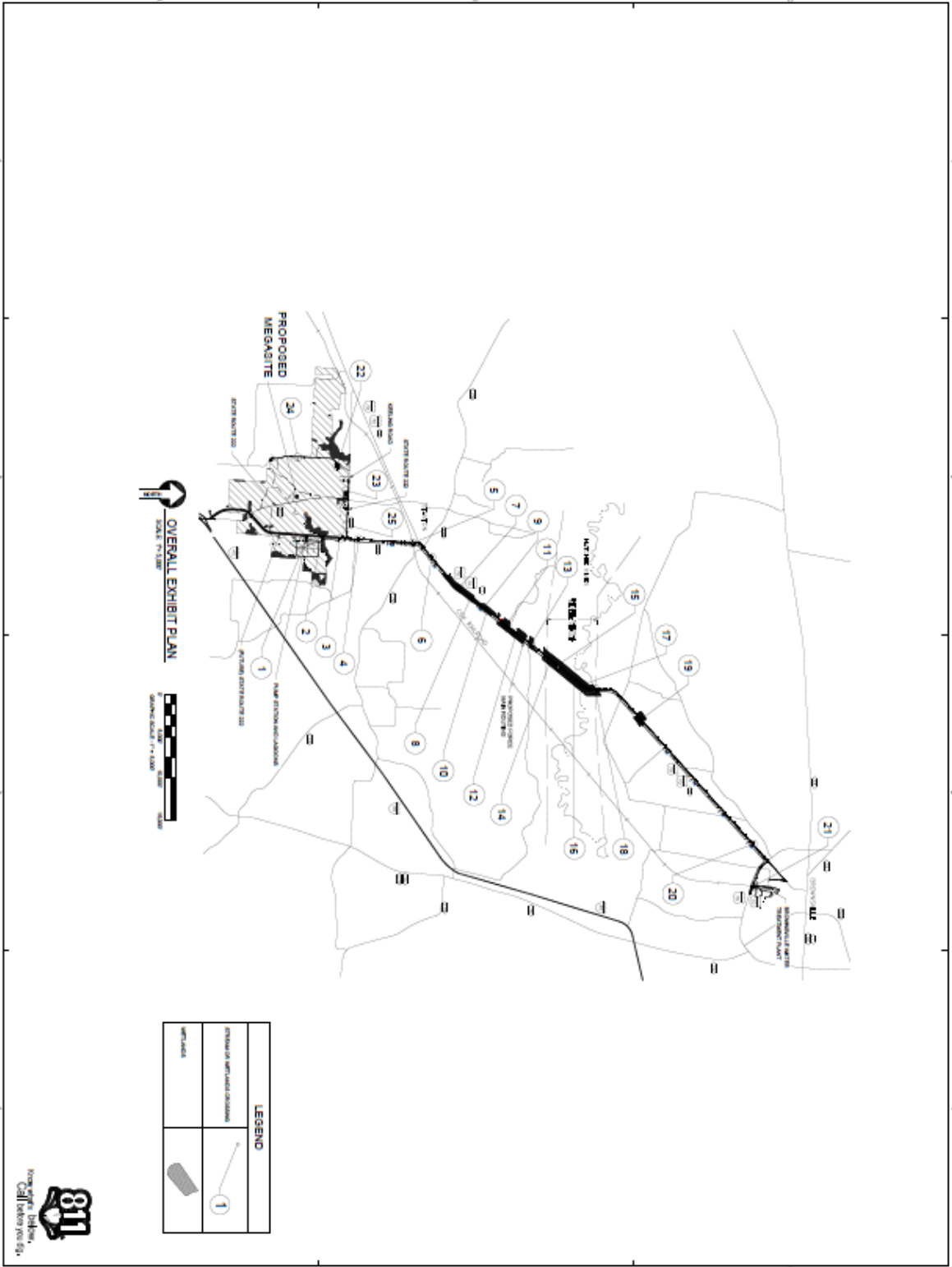
PROJECT TITLE:  
**ARAP**  
DRAWING NO:  
**OVERALL SITE**



LEGEND	
STREAM OR WETLANDS CROSSING	2

1000' QUAD MAP LOCATION	
TURPICE	BROWNSVILLE
STANTON	DANCYVILLE
ALSO SEE 1" QUAD MAPS	





**88550e**

J.R. WALKER & CO.

MEMPHIS REGIONAL MEGASITE

STATE OF TN

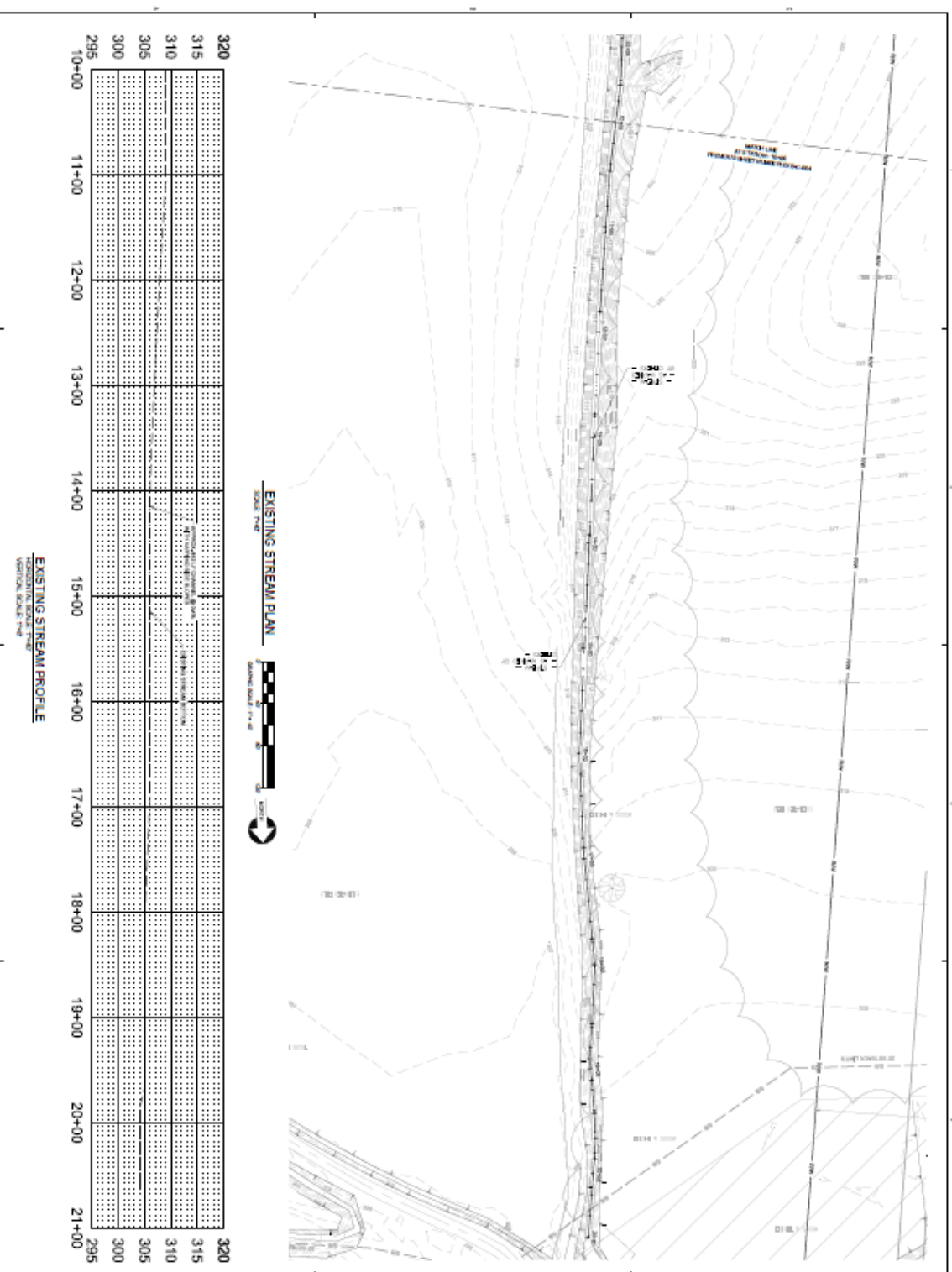
811

OVERALL EXHIBIT PLAN

EXH-C-000







885506

J.R. WATFORD & CO.

STATE OF TN

MEMPHIS REGIONAL WASTEWATER TREATMENT PLANT

PLAN 5

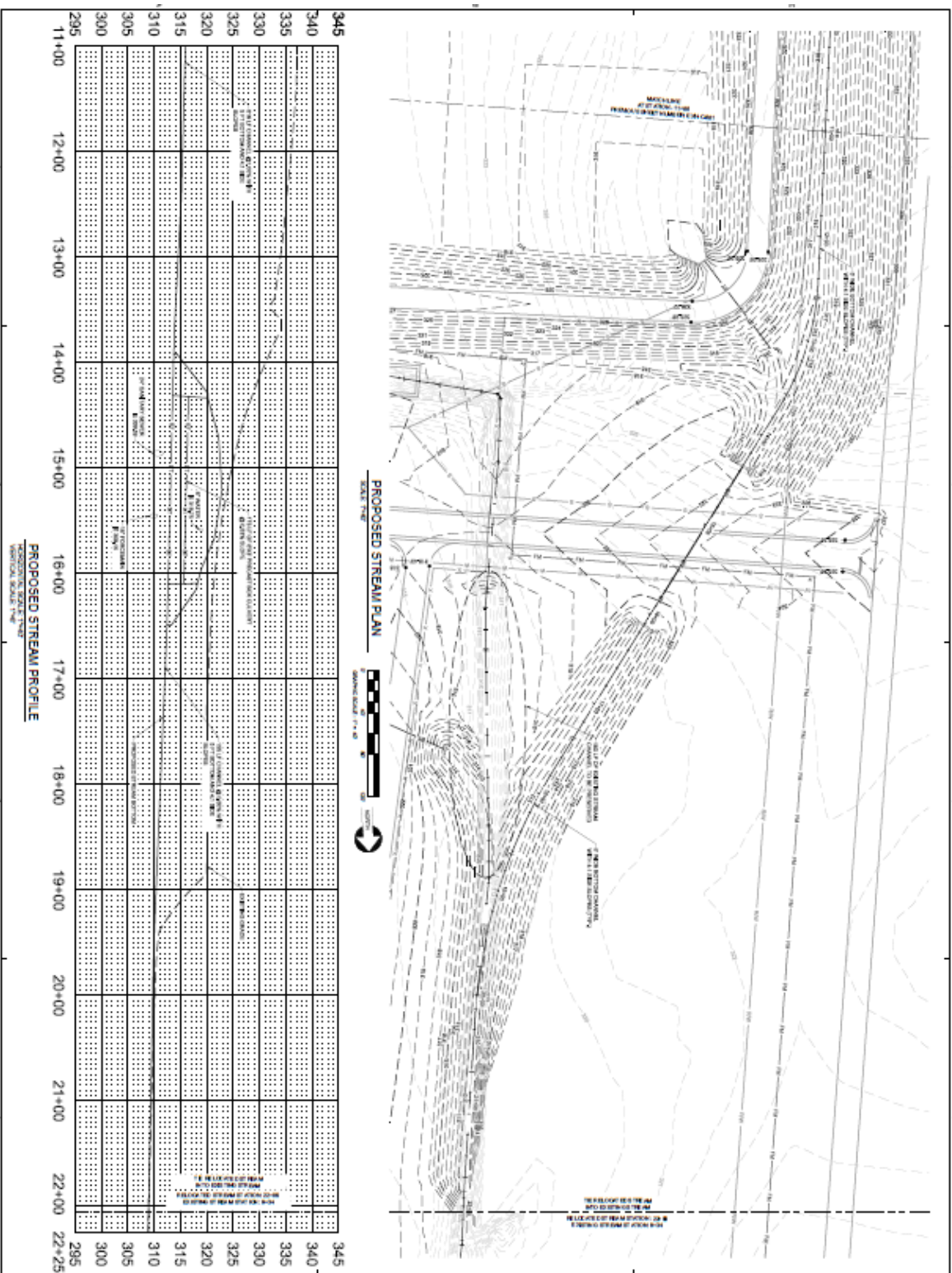
PROFILE OF

EXISTING STREAM

EXH-C-002









**SS06**



L.R. WARFIELD & CO.



STATE OF TN



STATE OF TN



STATE OF TN

**PLAN 8**

**PROFILE OF PROPOSED STREAM**

**EXH-C-004**

**PROPOSED STREAM**

**PROPOSED STREAM**

**PROPOSED STREAM**

88550e



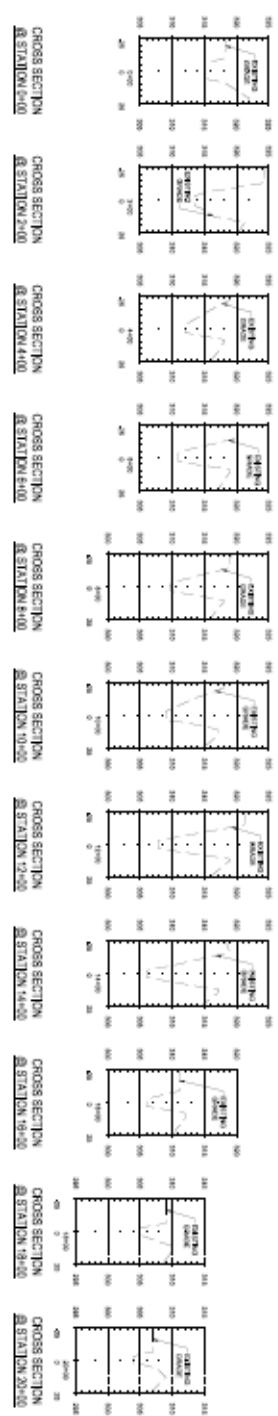
MEMPHIS REGIONAL WEAIR



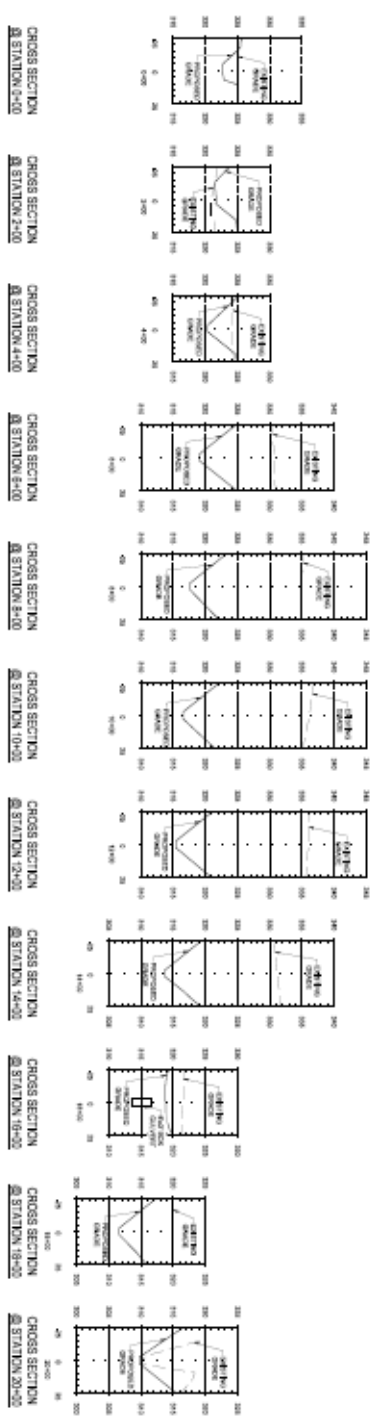
STATE OF TN

PROJECT NO.	015-0205-00
PROJECT NAME	MEMPHIS REGIONAL WEAIR
PROJECT LOCATION	MEMPHIS, TENNESSEE
PROJECT DESCRIPTION	CONSTRUCTION OF A NEW WEAIR
PROJECT STATUS	UNDERWAY
PROJECT START DATE	01/01/2015
PROJECT END DATE	12/31/2015
PROJECT BUDGET	\$1,000,000
PROJECT FUNDING	STATE OF TENNESSEE
PROJECT CONTACT	JOHN WATKINS
PROJECT PHONE	901-555-1234
PROJECT FAX	901-555-5678
PROJECT EMAIL	john@jbwatkins.com
PROJECT WEBSITE	www.jbwatkins.com

EXISTING CHANNEL



PROPOSED CHANNEL



CROSS SECTIONS OF  
EXISTING AND PROPOSED STREAM  
VERTICAL SCALE: 1"=8'  
HORIZONTAL SCALE: 1"=40'

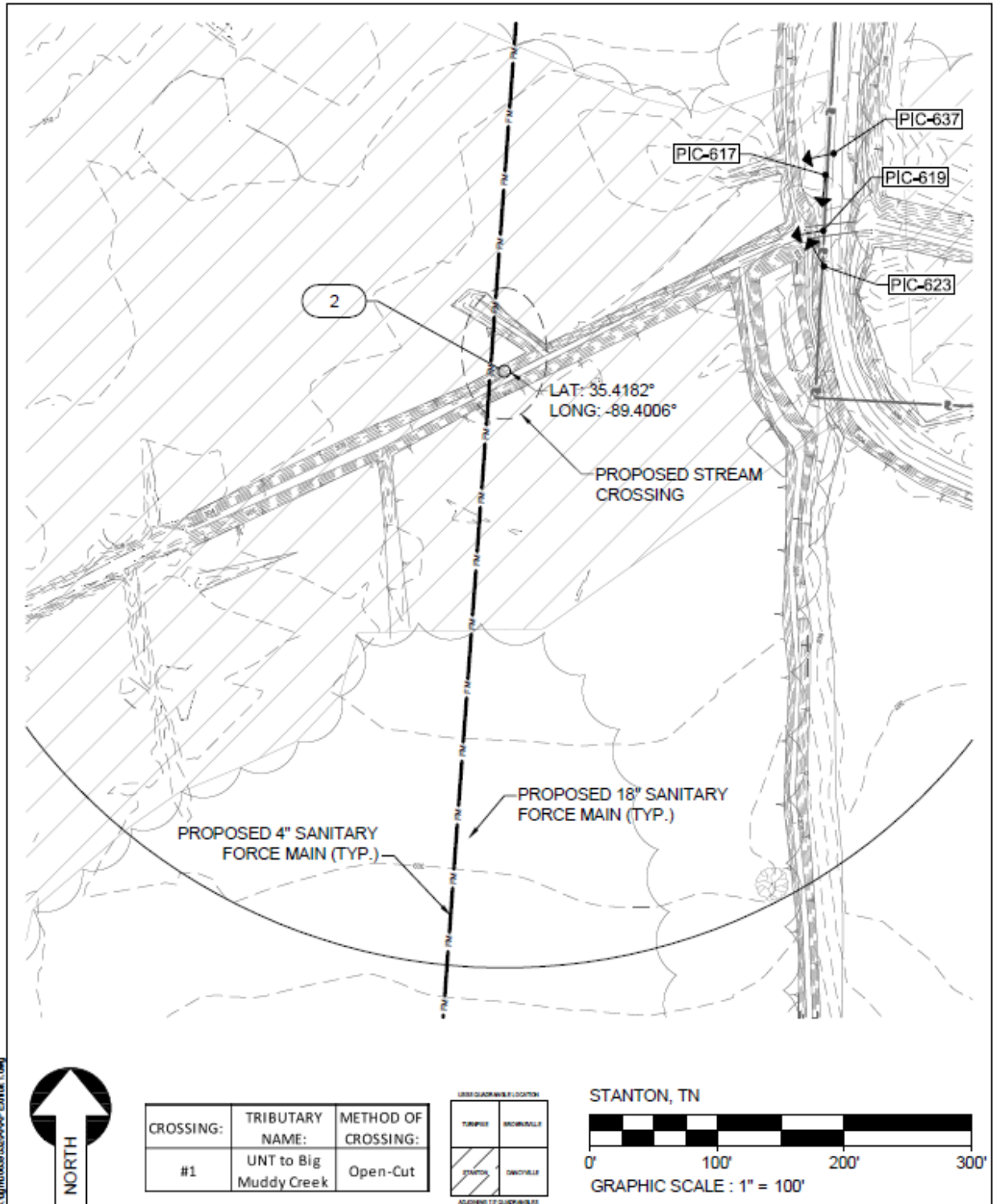
EXH-C-005



PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
© COPYRIGHT SSOE, Inc. 2011

DRAWING TITLE  
**CROSSING NO. 1  
AQUATIC RESOURCE  
ALTERATION PERMIT**

PROJECT TITLE  
**MEMPHIS REGIONAL MEGASITE**  
DRAWING NO:  
**EXHIBIT NO. 1**



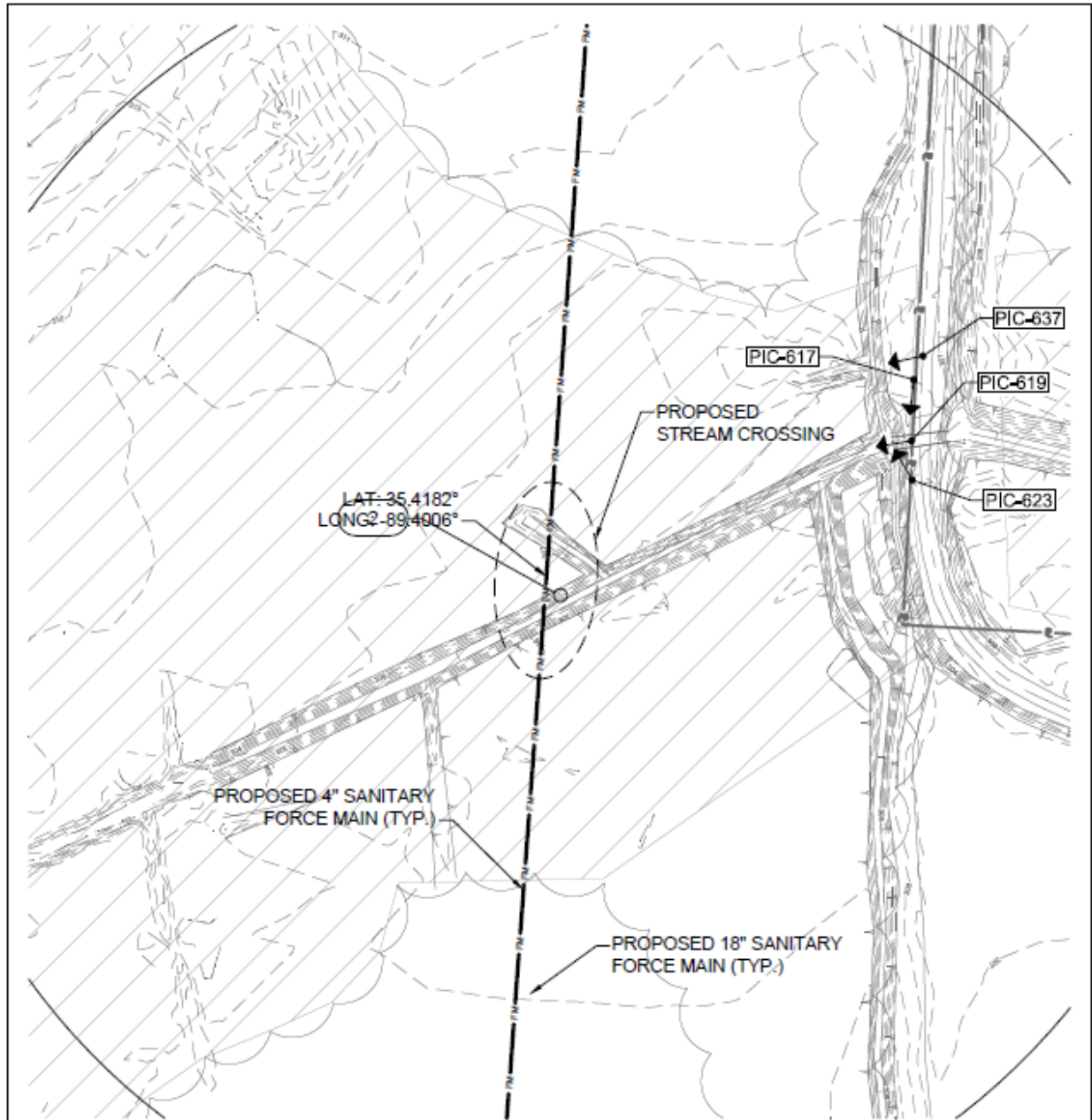




PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
© COPYRIGHT SSOE, Inc. 2011

DRAWING TITLE  
**CROSSING NO. 2  
AQUATIC RESOURCE  
ALTERATION PERMIT**

PROJECT TITLE  
**MEMPHIS REGIONAL MEGASITE**  
DRAWING NO:  
**EXHIBIT NO. 2**



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#2	UNT to Big Muddy Creek	Open-Cut

USGS QUAD MAP LOCATION	
TURKEY	BRIDGEMAN
STANTON	DAYVILLE
ADJACENT TO QUAD MAPS	

STANTON, TN



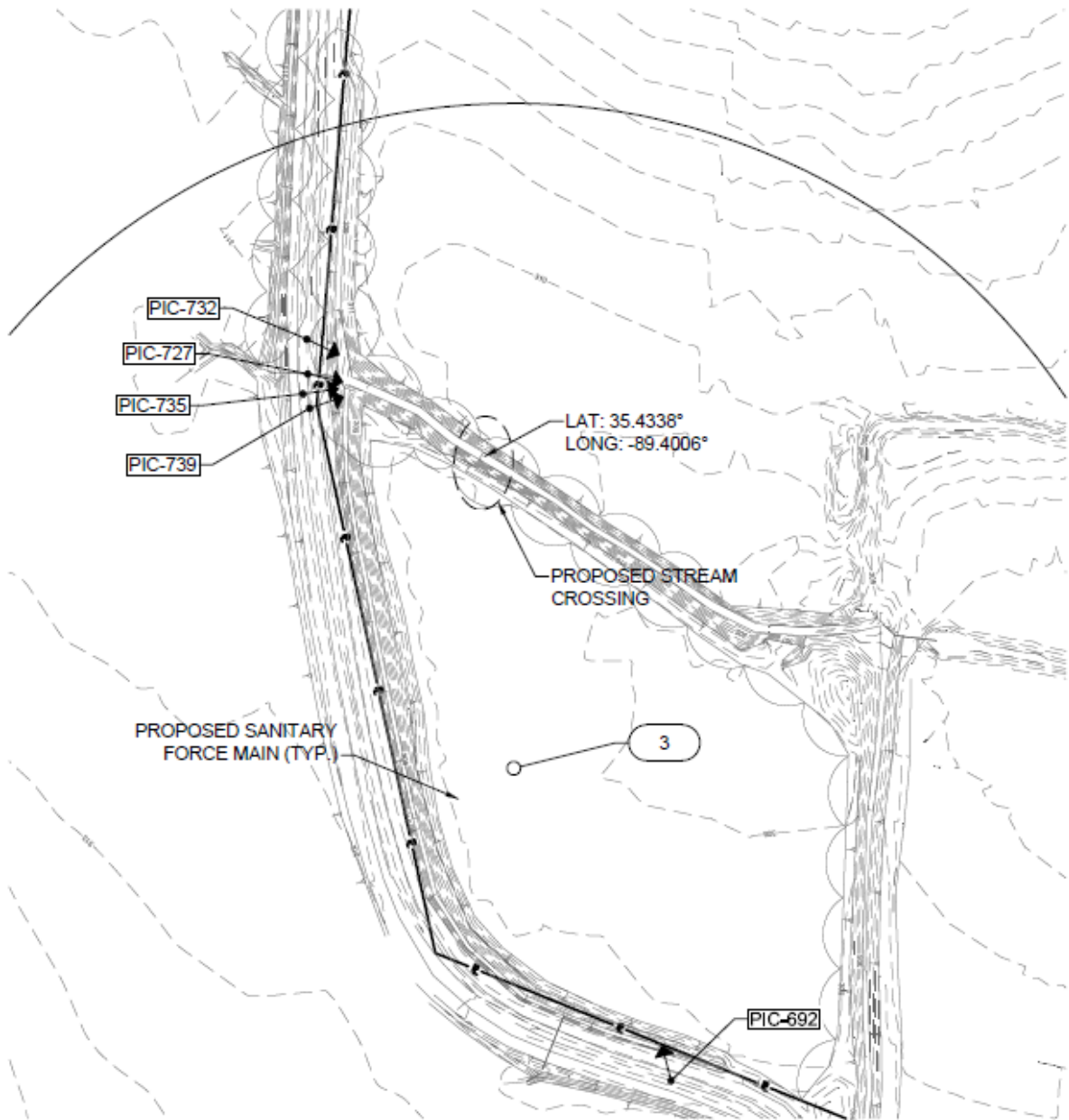
GRAPHIC SCALE : 1" = 100'



PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
© COPYRIGHT: SSOE, INC. 2011

DRAWING TITLE:  
CROSSING NO. 3  
AQUATIC RESOURCE  
ALTERATION PERMIT

PROJECT TITLE:  
MEMPHIS REGIONAL MEGASITE  
DRAWING NO:  
EXHIBIT NO. 3



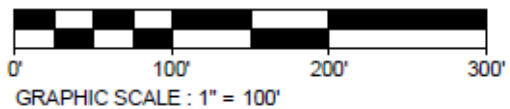
C:\BURNS\SSO\012-02080-00\EXHIBIT 3.DWG



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#3	UNT to Big Muddy Creek	Open-Cut

LESS QUADRANT LOCATION	
TURKEY	BRICKVILLE
STANTON	DRYVILLE
ADJACENT TO QUADRANTS	

STANTON, TN

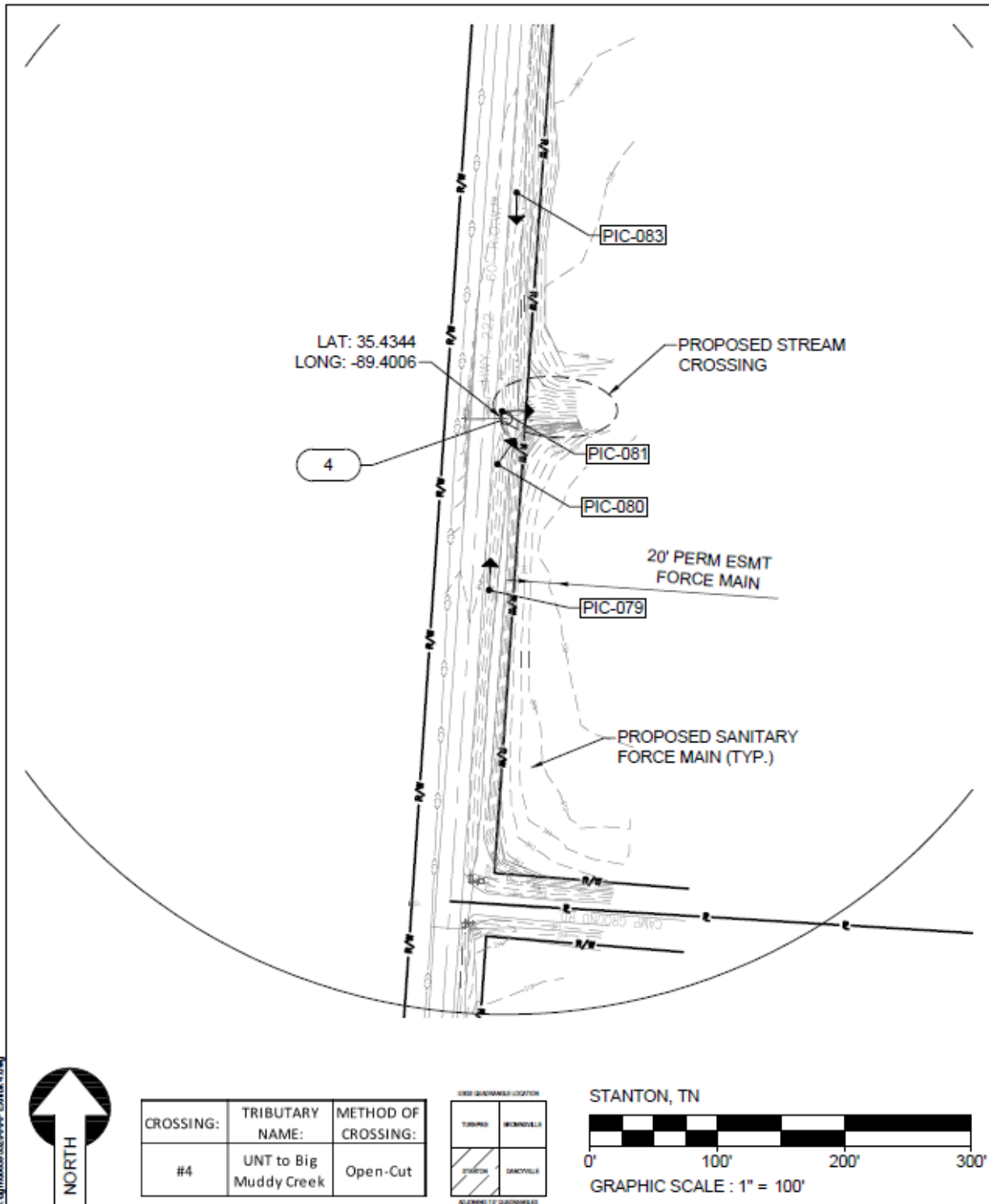




PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 4  
 AQUATIC RESOURCE  
 ALTERATION PERMIT**

PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
 DRAWING NO:  
**EXHIBIT NO. 4**

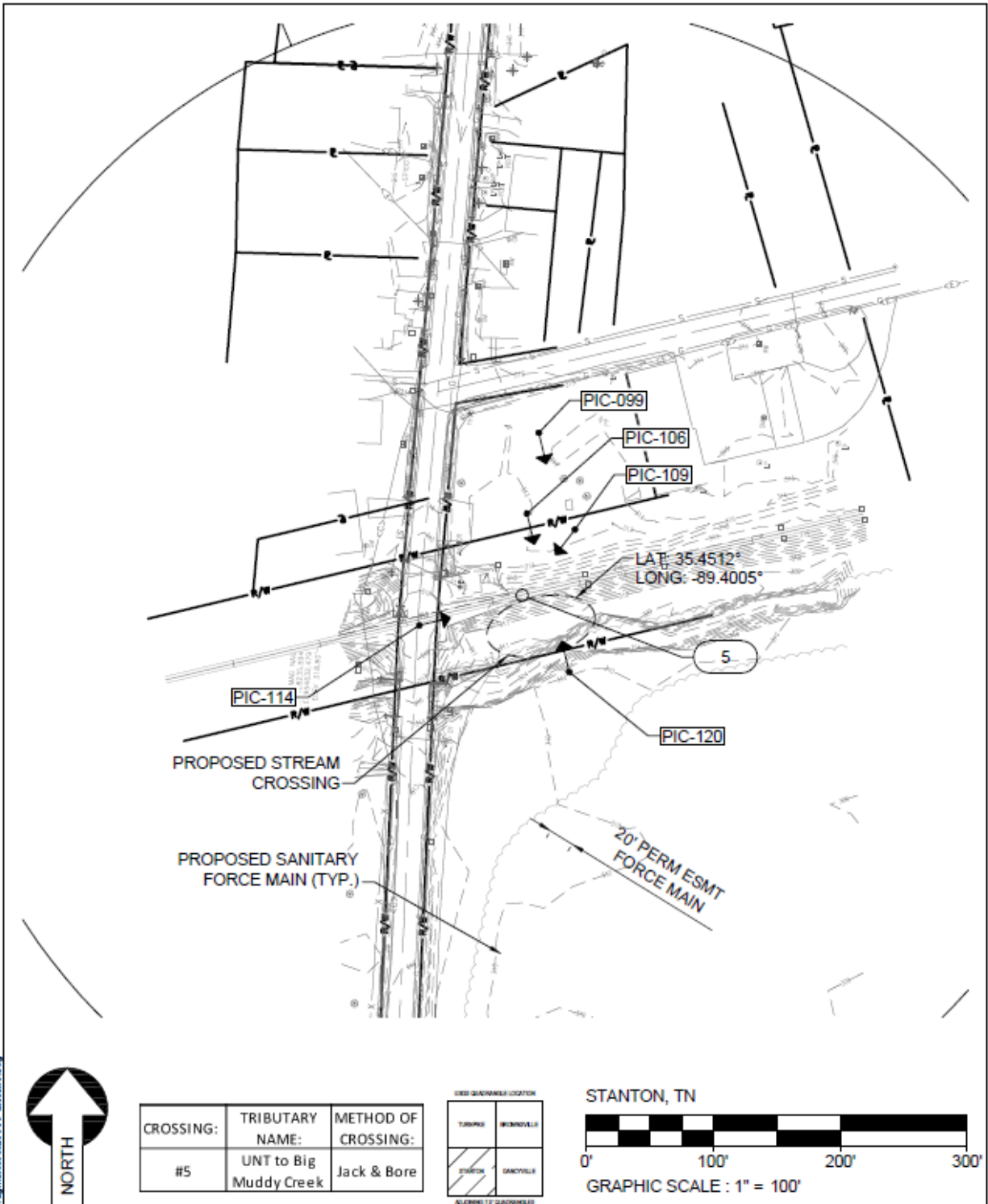




PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 5  
AQUATIC RESOURCE  
ALTERATION PERMIT**

PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
DRAWING NO:  
**EXHIBIT NO. 5**



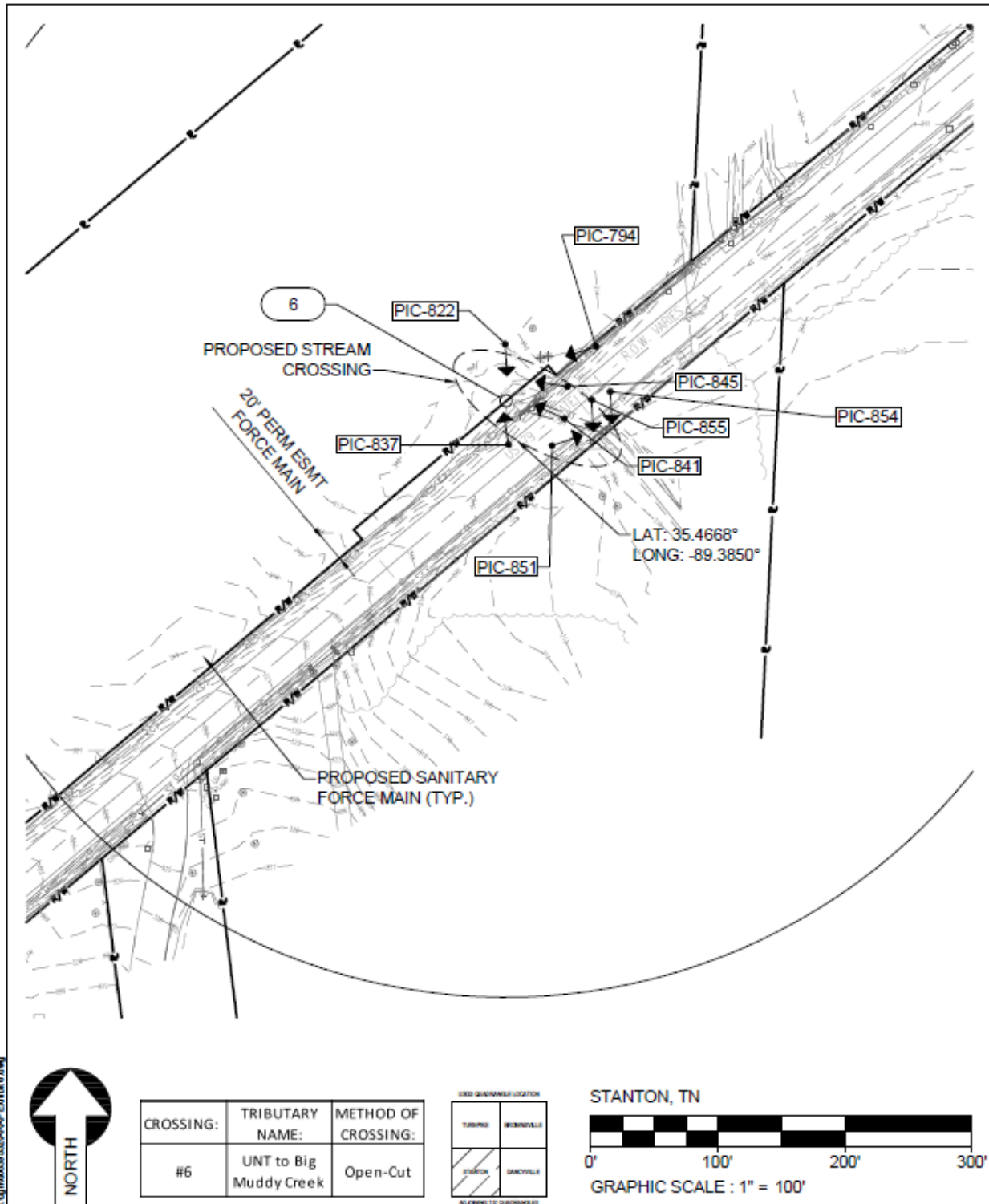
C:\p\m\m\012-02080-00\APP\EXHIBIT 5.dwg



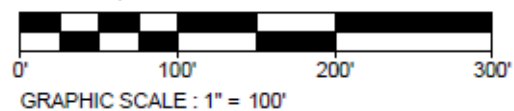
PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 6  
 AQUATIC RESOURCE  
 ALTERATION PERMIT**

PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
 DRAWING NO:  
**EXHIBIT NO. 6**







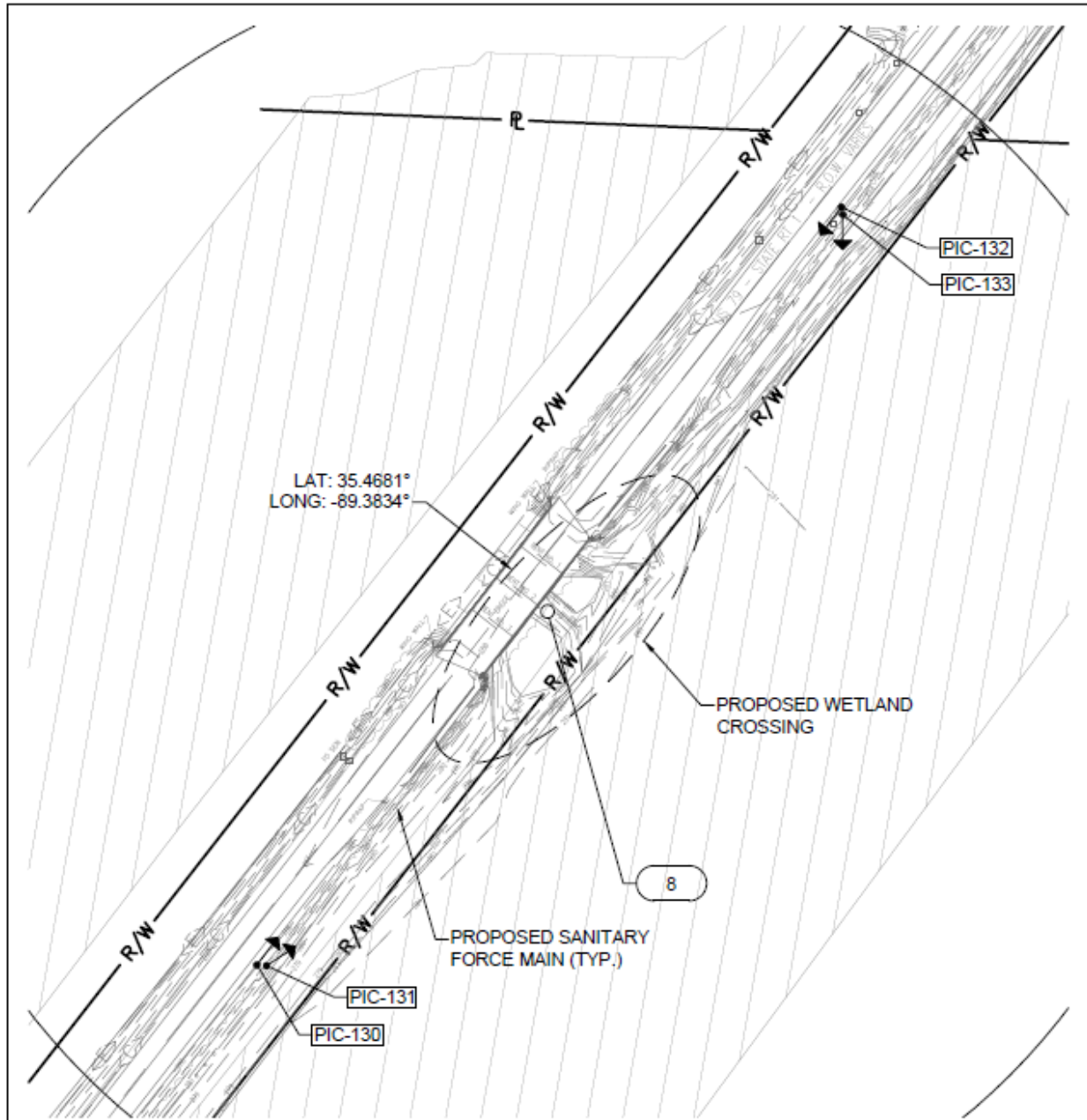




PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 8  
 AQUATIC RESOURCE  
 ALTERATION PERMIT**

PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
 DRAWING NO:  
**EXHIBIT NO. 8**



STANTON, TN



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#8	UNT to Big Muddy Creek	Horizontal Directional Drilling

USED QUADRANGLE LOCATION	
TOWN	RANGE
SECTION	SUBSECTION

STANTON, TN



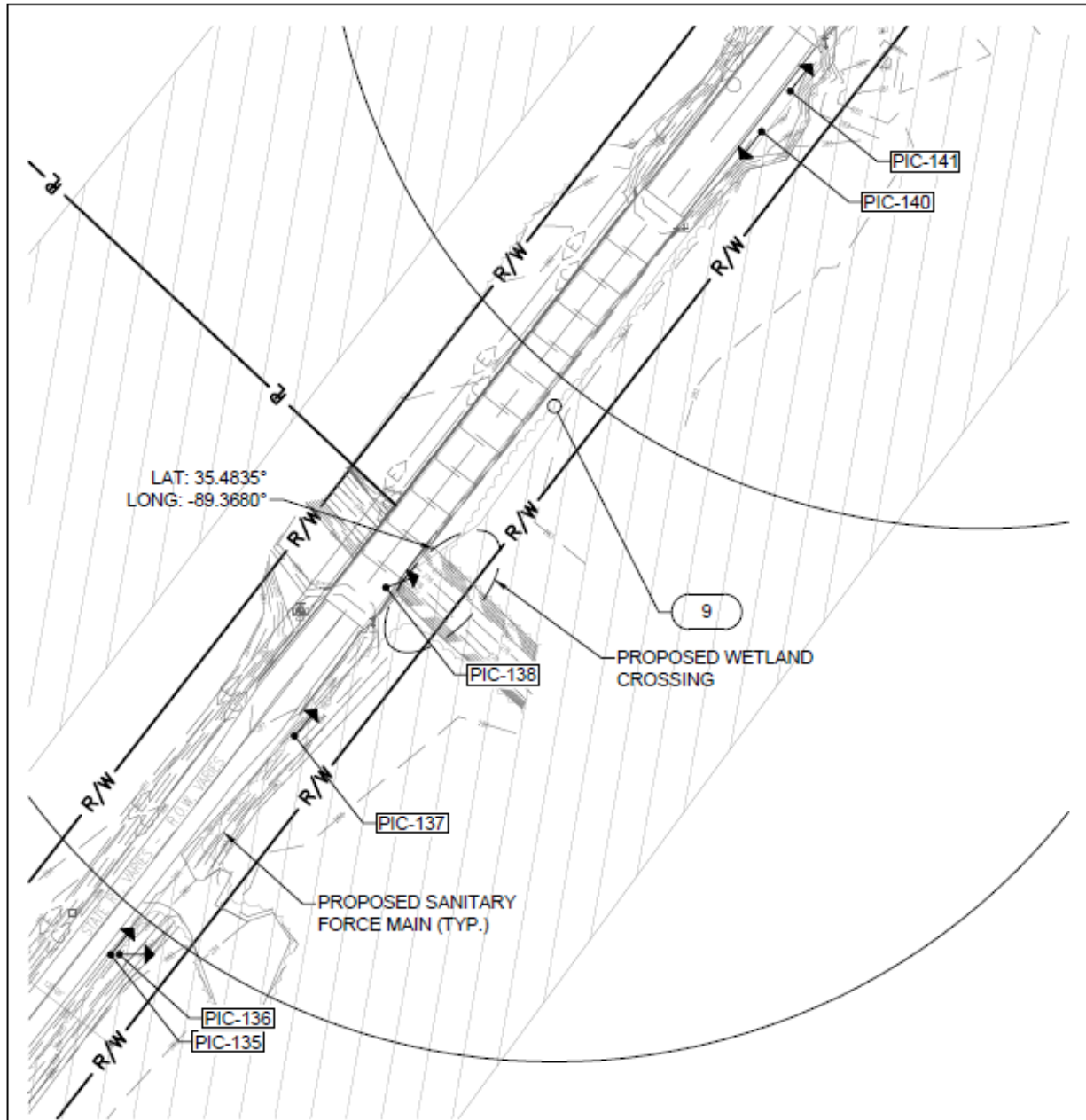
GRAPHIC SCALE : 1" = 100'



PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 9  
AQUATIC RESOURCE  
ALTERATION PERMIT**

PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
DRAWING NO:  
**EXHIBIT NO. 9**



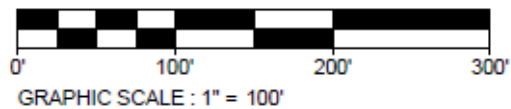
12/15/2011 10:00 AM J. LOWE



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#9	UNT to Big Muddy Creek	Horizontal Directional Drilling

TWO QUADRANT LOCATION	
TOWNSHIP	RANGE
SECTION	QUADRANT

STANTON, TN

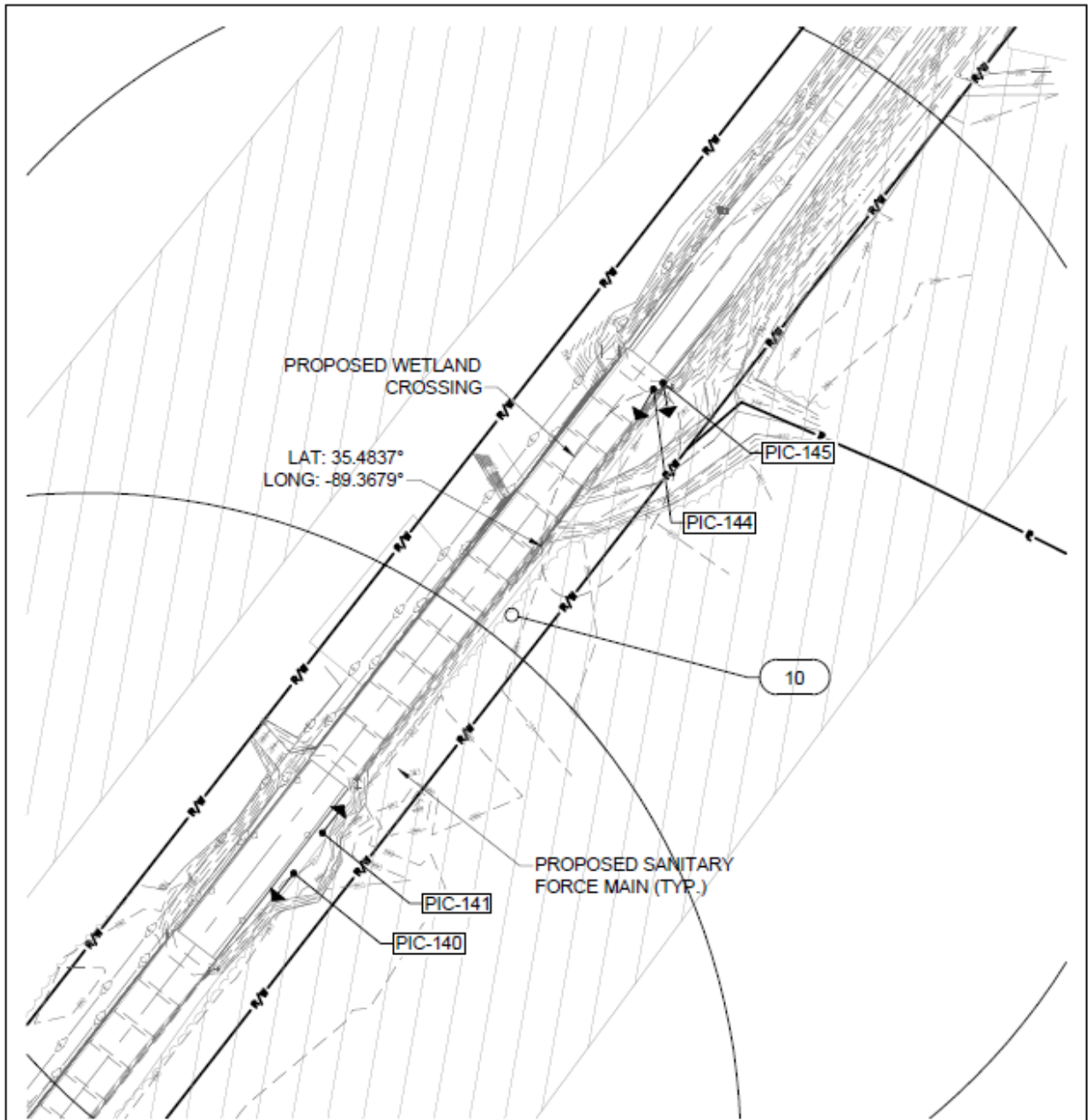




PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 10  
AQUATIC RESOURCE  
ALTERATION PERMIT**

PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
DRAWING NO:  
**EXHIBIT NO. 10**



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#10	UNT to Big Muddy Creek	Horizontal Directional Drilling

TIER 2 QUADRANGLE LOCATION	
TOWNSHIP	RANGE
34N	6E
SECTION	QUADRANGLE
10	10

BROWNSVILLE, TN



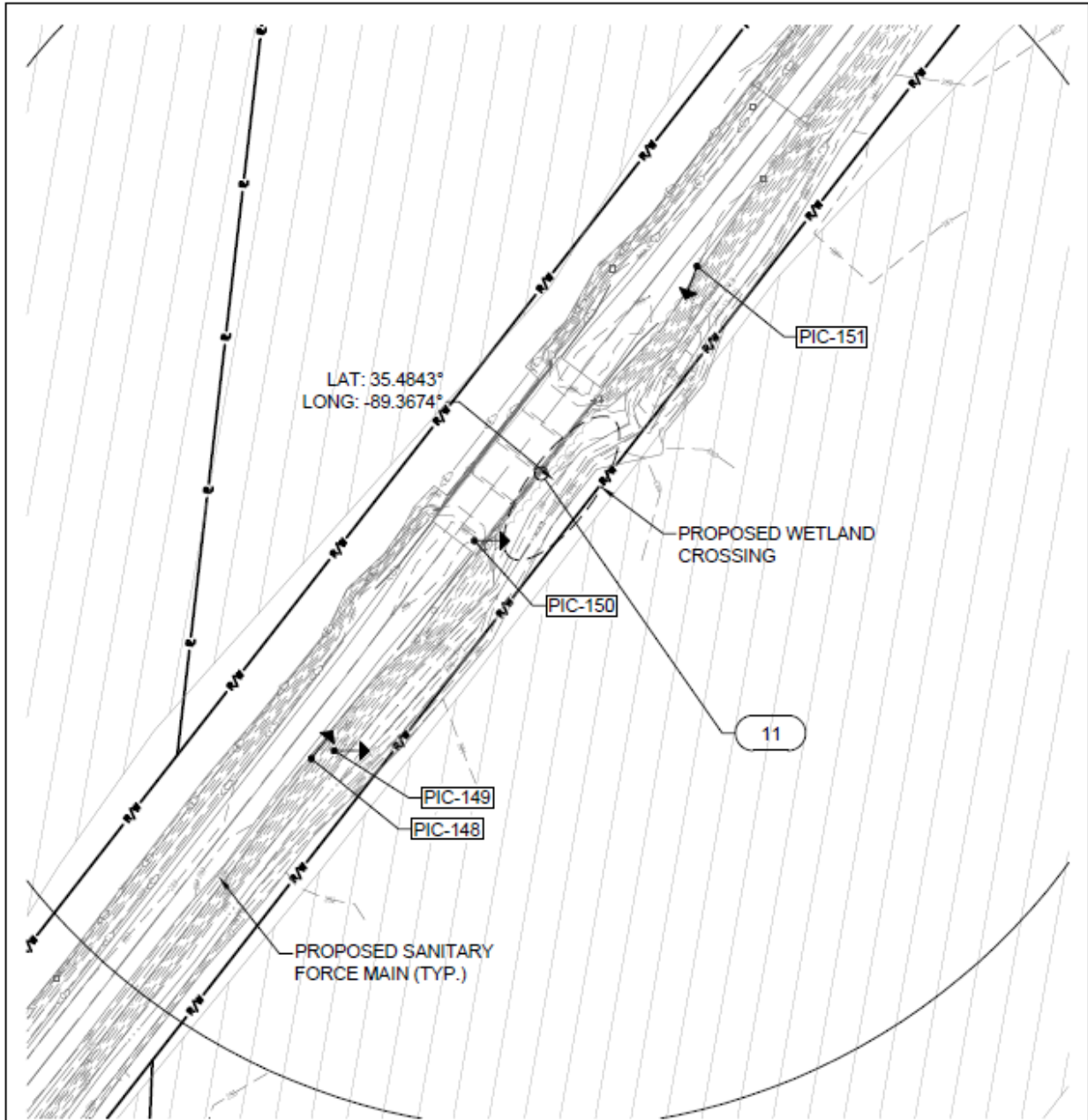
GRAPHIC SCALE : 1" = 100'



PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 © COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 11  
 AQUATIC RESOURCE  
 ALTERATION PERMIT**

PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
 DRAWING NO:  
**EXHIBIT NO. 11**



SHEET 1 OF 1



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#11	UNT to Big Muddy Creek	Horizontal Directional Drilling

1000' QUADRANGLE LOCATION	
TOWNSHIP	RANGE
34N	6W
SECTION	QUADRANGLE
11	11

DANCYVILLE, TN



GRAPHIC SCALE : 1" = 100'

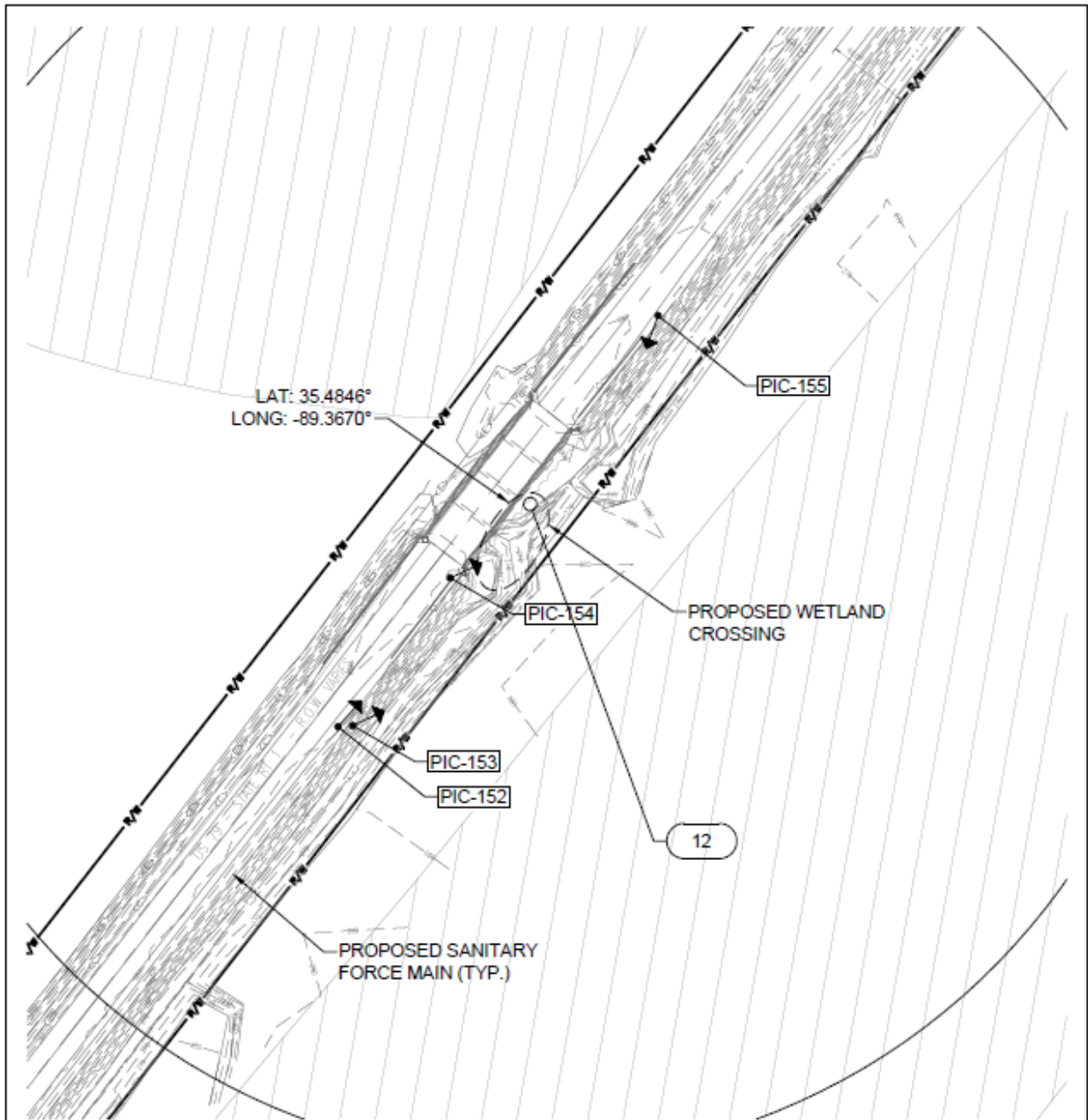




PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 12  
 AQUATIC RESOURCE  
 ALTERATION PERMIT**

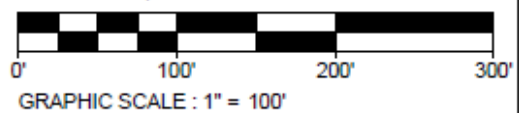
PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
 DRAWING NO:  
**EXHIBIT NO. 12**

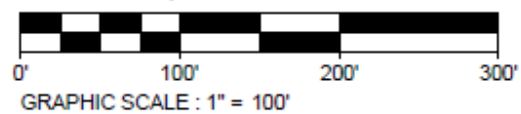


CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#12	UNT to Big Muddy Creek	Horizontal Directional Drilling

USED QUADRANGLE LOCATION	
TOWNSHIP	RANGE
SECTION	QUADRANGLE

DANCYVILLE, TN





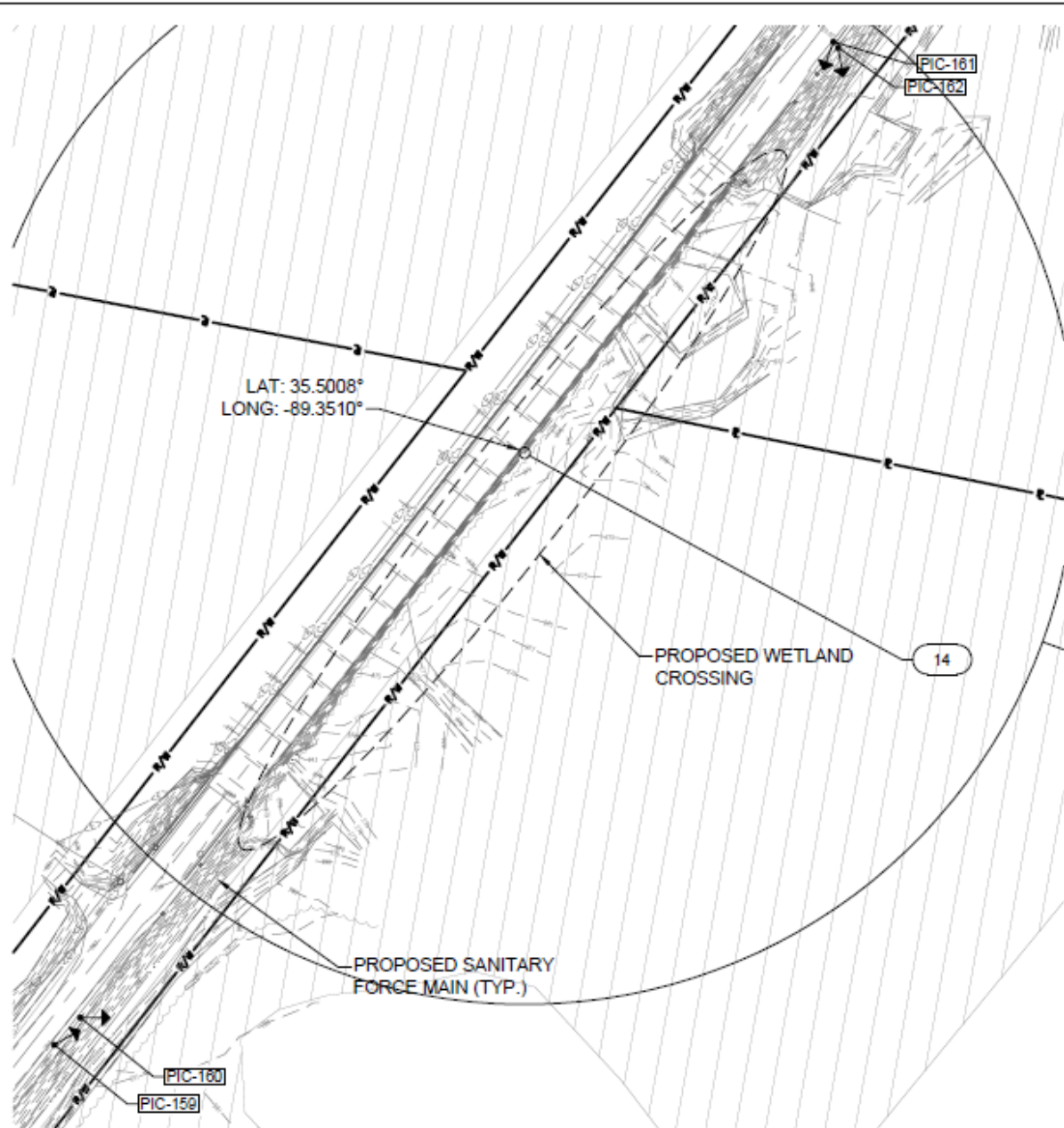




PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 14**  
**AQUATIC RESOURCE**  
**ALTERATION PERMIT**

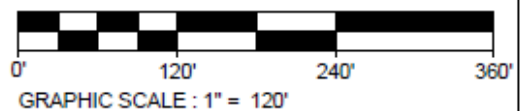
PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
 DRAWING NO:  
**EXHIBIT NO. 14**



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#14	UNT to Hatchie River	Horizontal Directional Drilling

TWO QUADRANT LOCATION	
TOWNSHIP	RANGE
SECTION	QUADRANT

BROWNSVILLE, TN



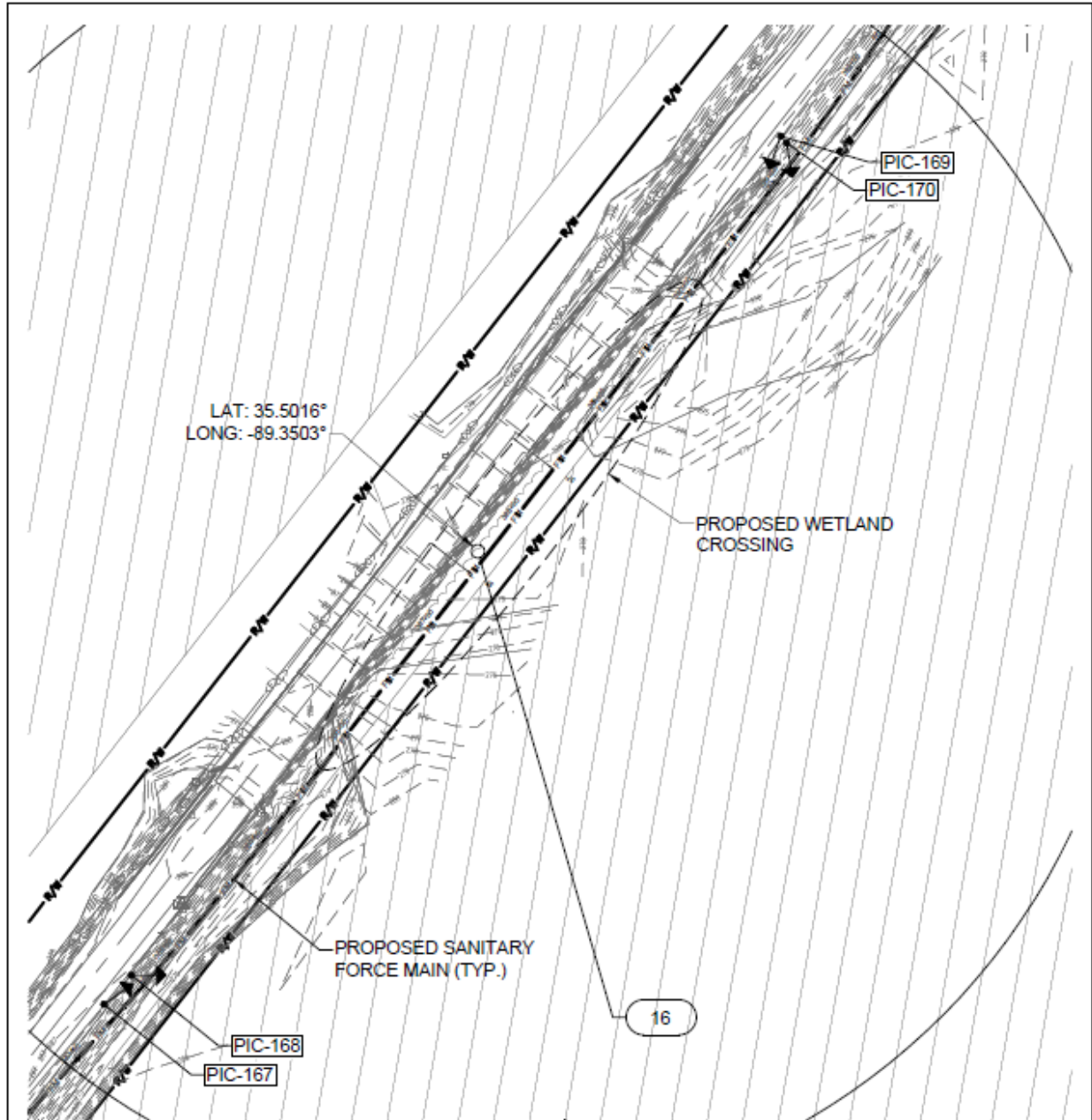




PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
© COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 16  
AQUATIC RESOURCE  
ALTERATION PERMIT**

PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
DRAWING NO:  
**EXHIBIT NO. 16**



Map is to be used in conjunction with the permit application.



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#16	UNT to Hatchie River	Horizontal Directional Drilling

1000' QUADRANGLE LOCATION	
TOWNSHIP	RANGE
34N	10E
SECTION	
16	36
QUADRANGLE LOCATION	

BROWNSVILLE, TN



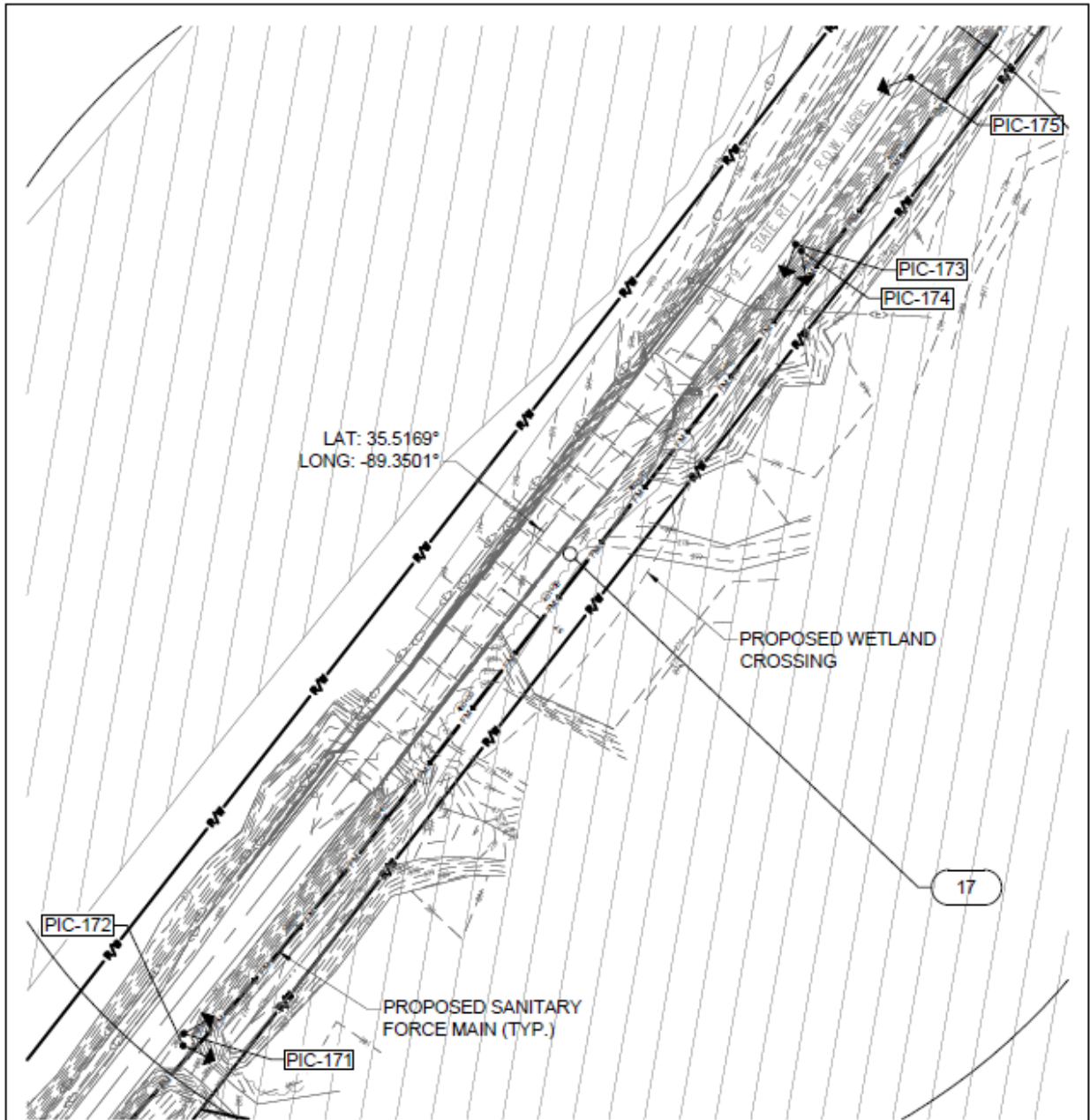
GRAPHIC SCALE : 1" = 100'



PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 COPYRIGHT: SSOE, INC. 2011

DRAWING TITLE:  
 CROSSING NO. 17  
 AQUATIC RESOURCE  
 ALTERATION PERMIT

PROJECT TITLE:  
 MEMPHIS REGIONAL MEGASITE  
 DRAWING NO:  
 EXHIBIT NO. 17



PLAN VIEW OF CROSSING NO. 17



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#17	UNT to Hatchie River	Horizontal Directional Drilling

USED QUADRANGLE LOCATION	
TOWNSHIP	RANGE
SECTION	QUADRANGLE

BROWNSVILLE, TN



GRAPHIC SCALE : 1" = 100'

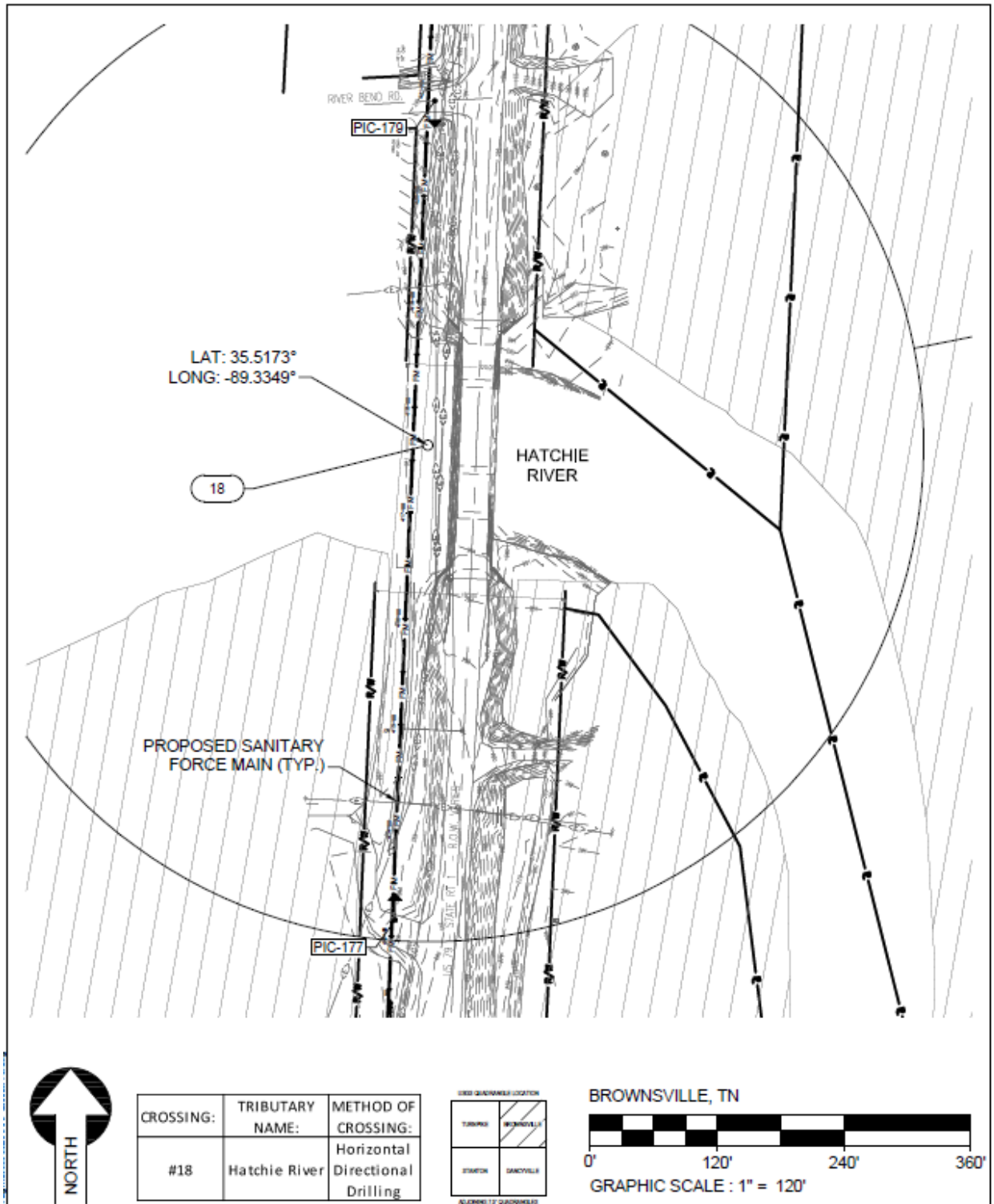




PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED BY: K. CRUMLEY  
CHECKED BY: M. TOWLES  
COPYRIGHT: SSOE, Inc. 2011

CROSSING TITLE:  
CROSSING NO. 18  
AQUATIC RESOURCE  
ALTERATION PERMIT

PROJECT TITLE:  
MEMPHIS REGIONAL MEGASITE  
DRAWING NO:  
EXHIBIT NO. 18

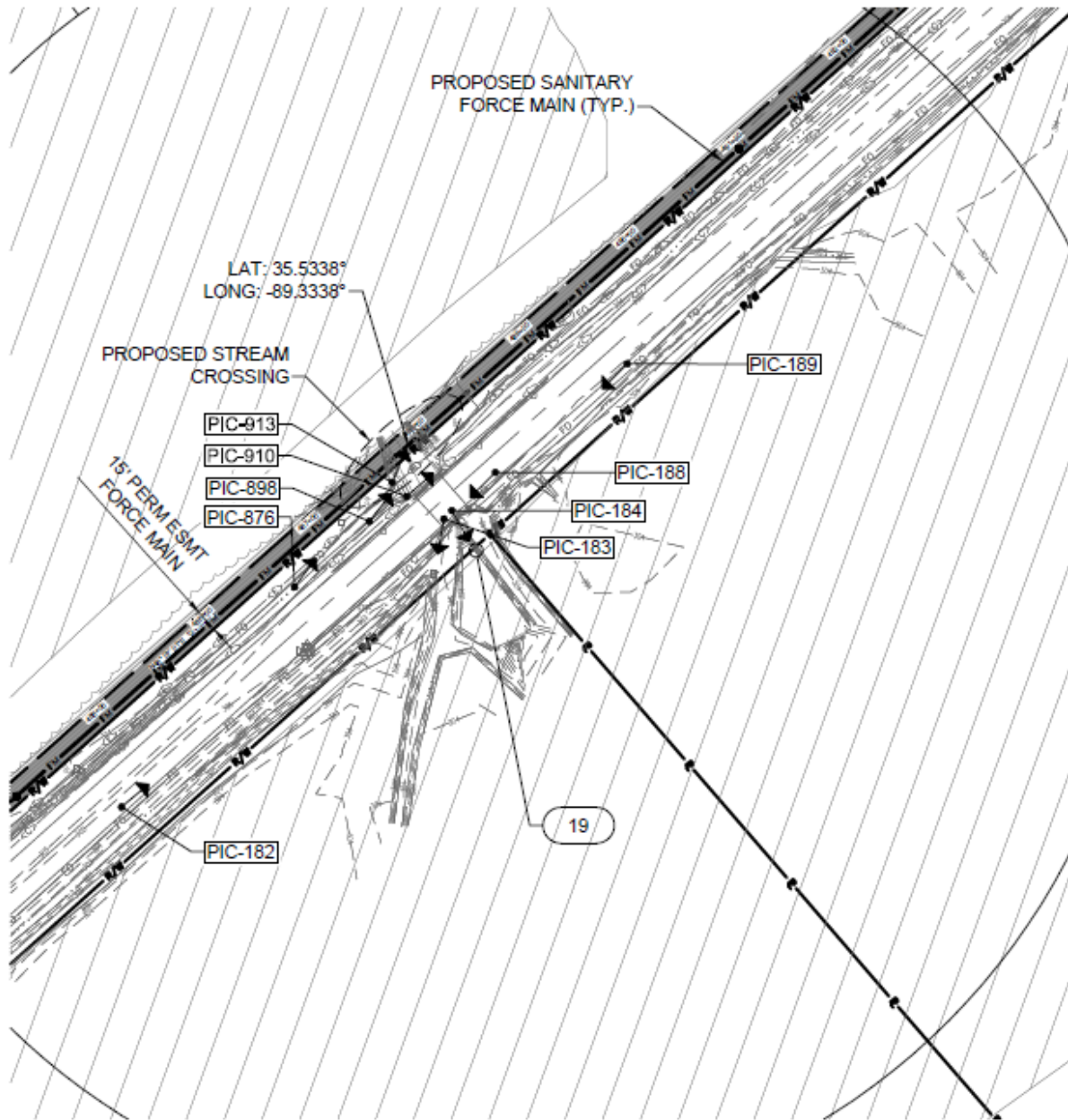




PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
 CROSSING NO. 19  
 AQUATIC RESOURCE  
 ALTERATION PERMIT

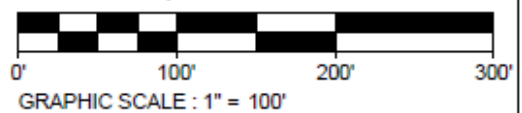
PROJECT TITLE:  
 MEMPHIS REGIONAL MEGASITE  
 DRAWING NO:  
 EXHIBIT NO. 19



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#19	UNT to Hatchie River	Horizontal Directional Drilling

TIER 2 QUADRANGLE LOCATION	
TOWNSHIP	RANGE
34N	6W
SECTION	QUADRANGLE
19	19

BROWNSVILLE, TN



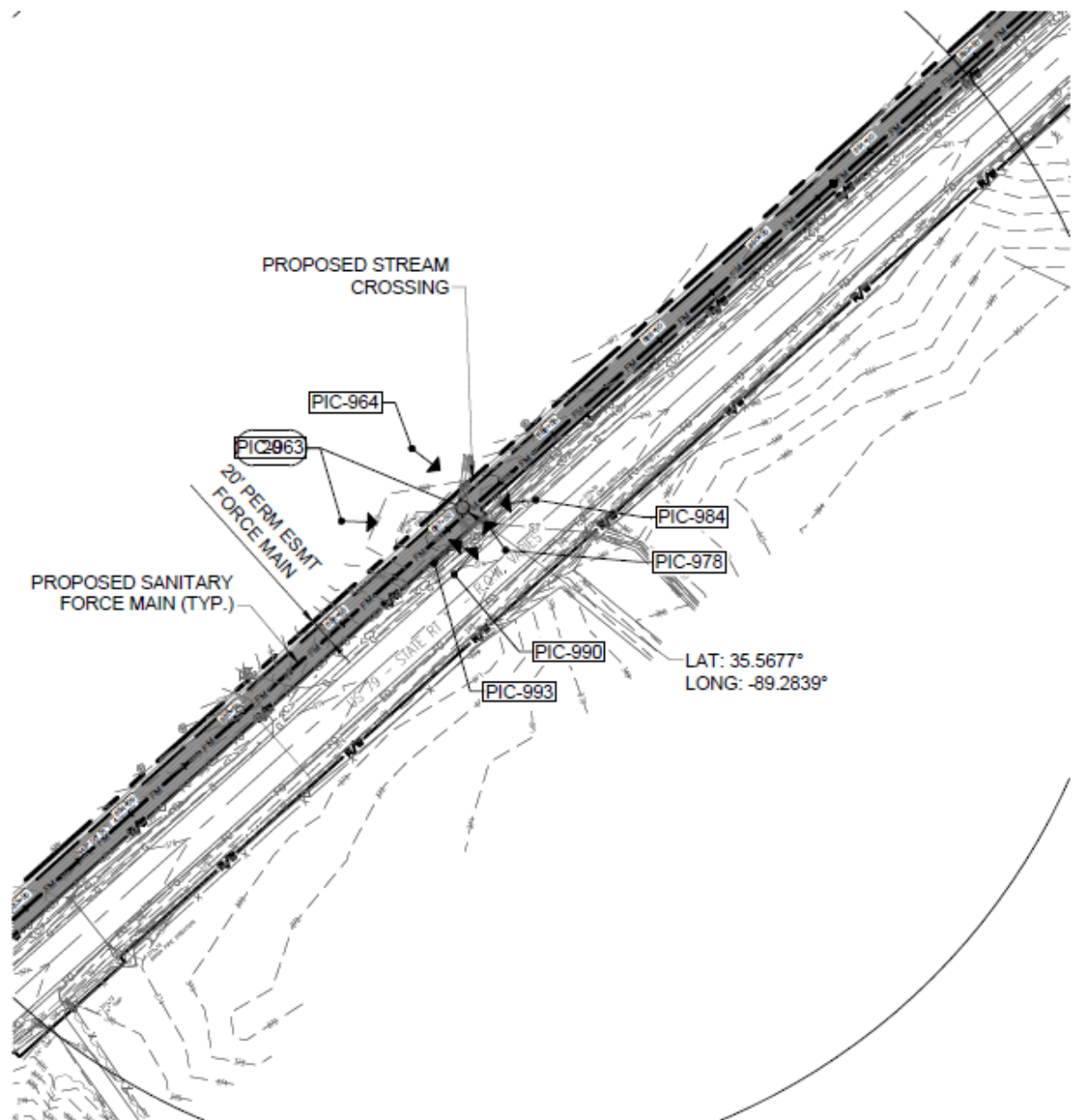




PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 COPYRIGHT: SSOE, Inc. 2011

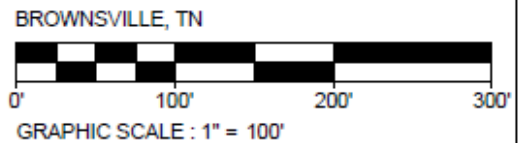
DRAWING TITLE:  
 CROSSING NO. 20  
 AQUATIC RESOURCE  
 ALTERATION PERMIT

PROJECT TITLE:  
 MEMPHIS REGIONAL MEGASITE  
 DRAWING NO:  
 EXHIBIT NO. 20



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#20	UNT to Sugar Creek	Open-Cut

TERRAIN QUADRANGLE LOCATION	
TOWN	MEMPHISVILLE
SECTION	QUINCYVILLE

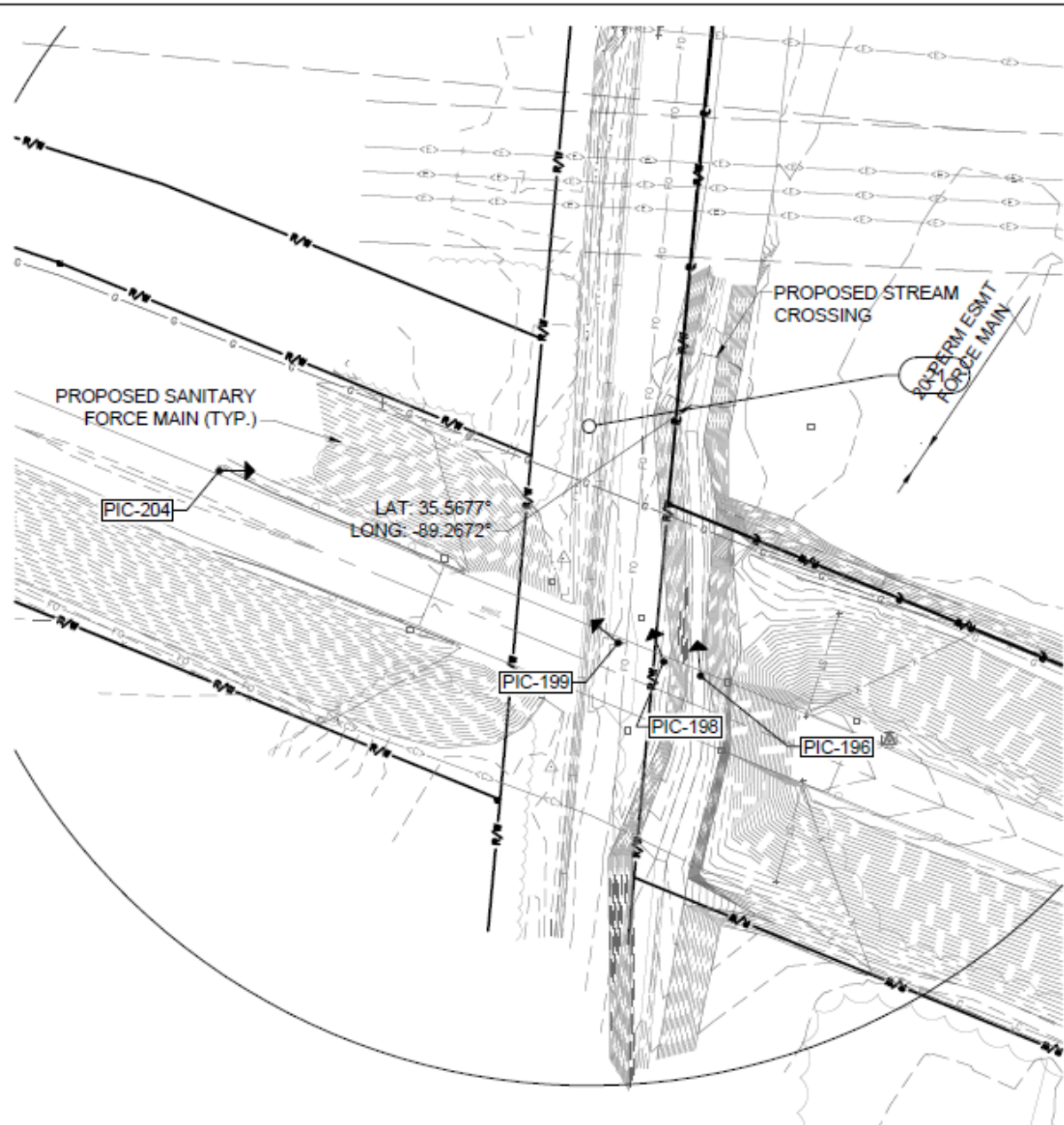




PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
CROSSING NO. 21  
AQUATIC RESOURCE  
ALTERATION PERMIT

PROJECT TITLE:  
MEMPHIS REGIONAL MEGASITE  
DRAWING NO:  
EXHIBIT NO. 21

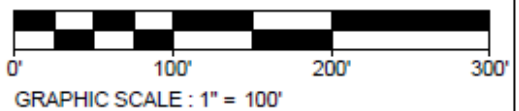


CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#21	UNT to Sugar Creek	Jack & Bore

USED QUADRANGLE LOCATION	
TOWNSHIP	RANGE
SECTION	QUADRANGLE

ALIGNED TO QUADRANGLES

BROWNSVILLE, TN





PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 © COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
 CROSSING NO. 22  
 AQUATIC RESOURCE  
 ALTERATION PERMIT

PROJECT TITLE:  
 MEMPHIS REGIONAL MEGASITE  
 DRAWING NO:  
 EXHIBIT NO. 22

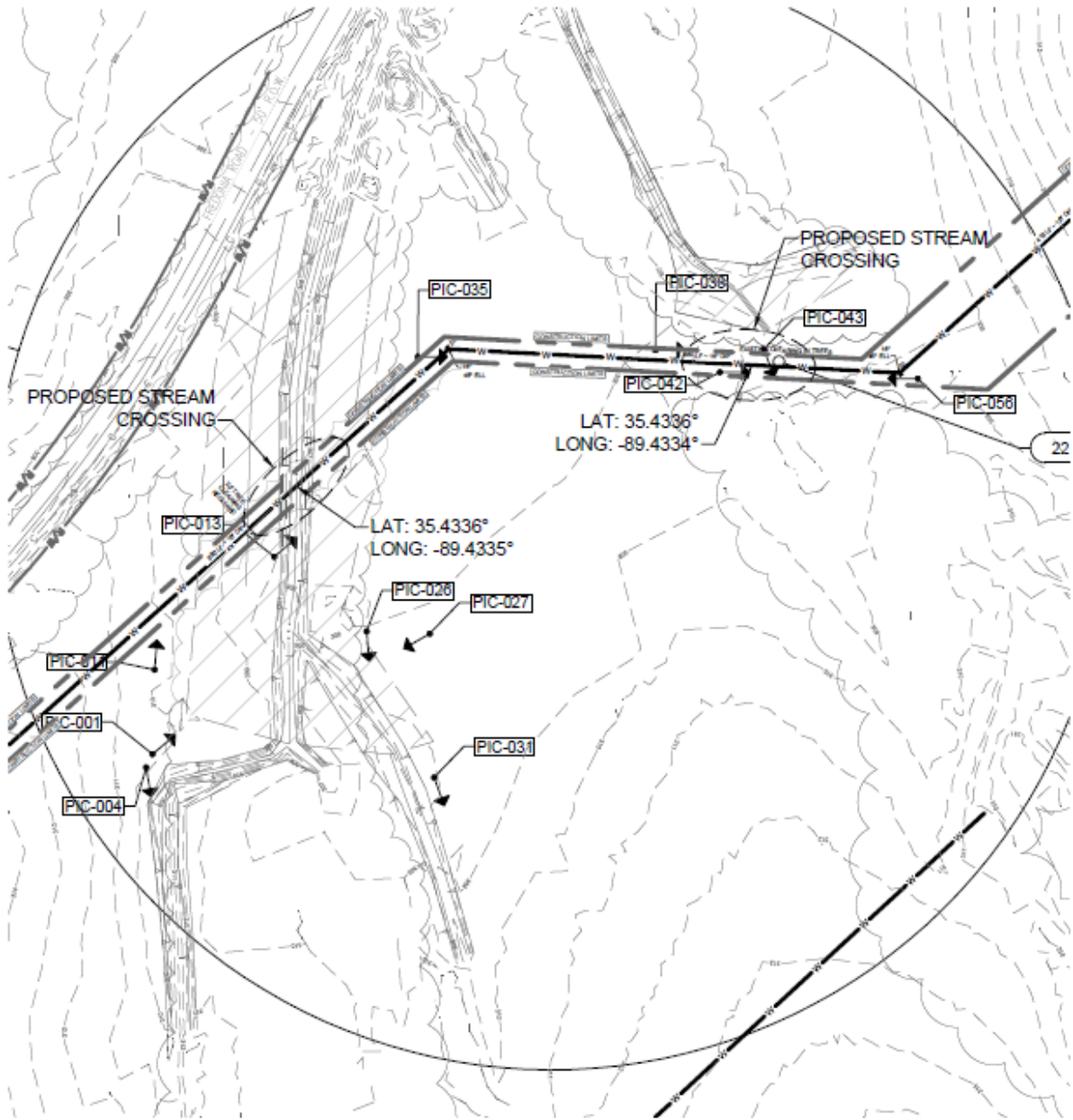


EXHIBIT NO. 22 AQUATIC RESOURCE ALTERATION PERMIT



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#22	UNT to Little Muddy Creek	Open-Cut

OVER QUADRANGLE LOCATION	
TOWNSHIP	BROWNVILLE
RANGE	SANDYVILLE

BROWNVILLE, TN



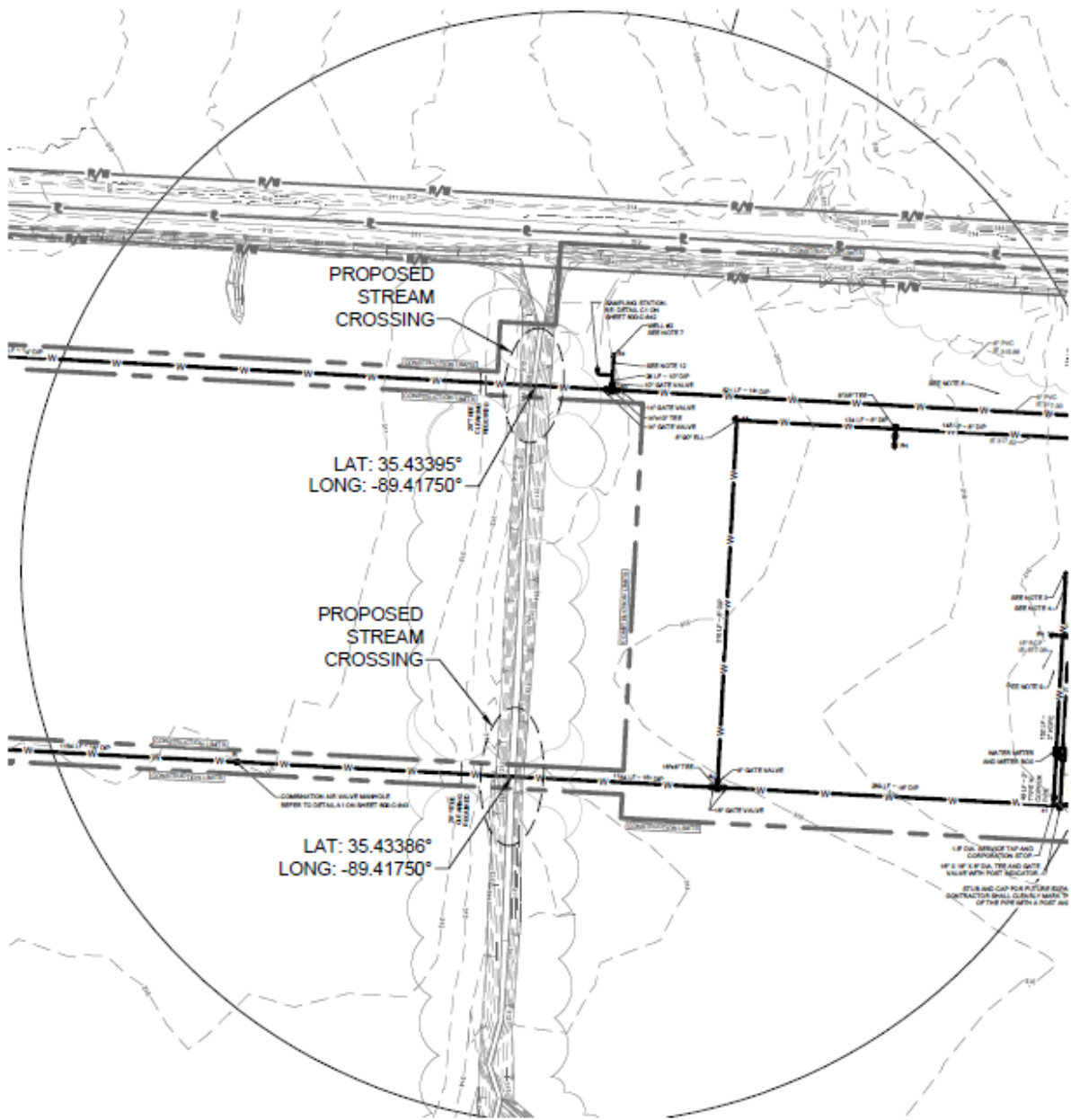
GRAPHIC SCALE : 1" = 120'



PROJECT NO: 012-02080-00  
PROJECT MANAGER: J. LOWE  
DESIGNED: K. CRUMLEY  
CHECKED: M. TOWLES  
COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
CROSSING NO. 23  
AQUATIC RESOURCE  
ALTERATION PERMIT

PROJECT TITLE:  
MEMPHIS REGIONAL MEGASITE  
DRAWING NO:  
EXHIBIT NO. 23



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#23	UNT to Big Muddy Creek	Open-Cut

DEED QUAD/ARLIS LOCATION	
TURKEY	MCNEVELL
STATION	DANDYVILLE

STANTON, TN



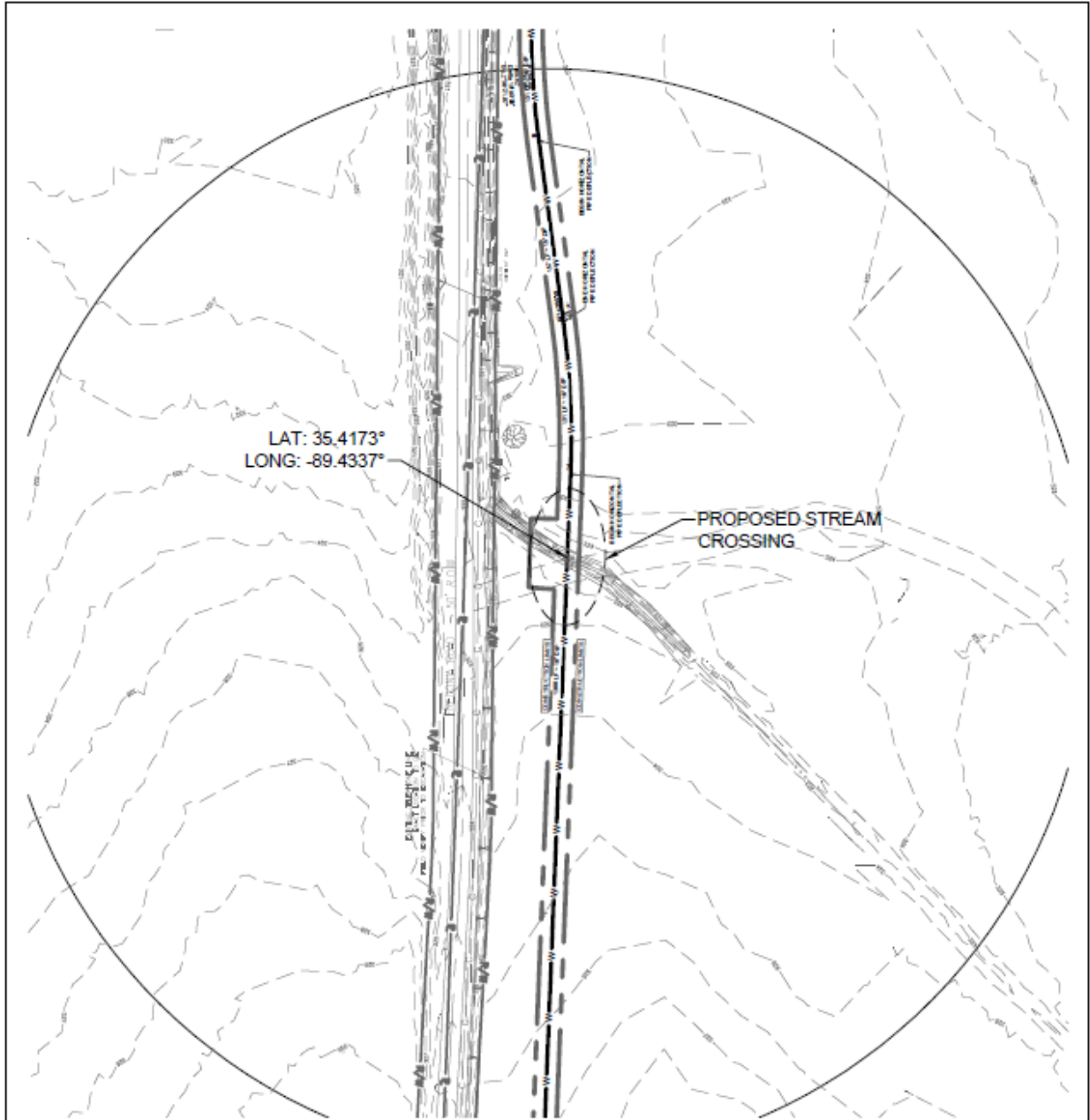
GRAPHIC SCALE : 1" = 120'



PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 © COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 24  
 AQUATIC RESOURCE  
 ALTERATION PERMIT**

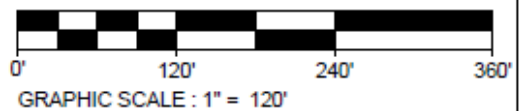
PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
 DRAWING NO:  
**EXHIBIT NO. 24**



CROSSING:	TRIBUTARY NAME:	METHOD OF CROSSING:
#24	UNT to Little Muddy Creek	Open-Cut

3000 QUAD INDEX LOCATION	
TURKEY	BRANDVILL
STANTON	DANDYVILLE
RELATIVE TO QUAD INDEX	

STANTON, TN







PROJECT NO: 012-02080-00  
 PROJECT MANAGER: J. LOWE  
 DESIGNED: K. CRUMLEY  
 CHECKED: M. TOWLES  
 COPYRIGHT: SSOE, Inc. 2011

DRAWING TITLE:  
**CROSSING NO. 25  
 AQUATIC RESOURCE  
 ALTERATION PERMIT**

PROJECT TITLE:  
**MEMPHIS REGIONAL MEGASITE**  
 DRAWING NO:  
**EXHIBIT NO. 25**

